DRAINAGE ANALYSIS

for

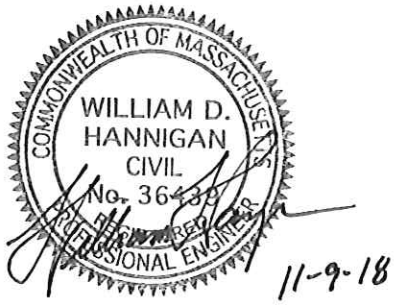
Solar Energy Project

Boutilier Road

Leicester, Massachusetts

September 10, 2018

Revisions Through November 9, 2018



Prepared for: ***ZPT Energy Solutions II, LLC***
Brendan Gove, President
6 Park Avenue
Worcester, Massachusetts 01605
(774) 314-2549

Prepared by: ***Hannigan Engineering, Inc.***
8 Monument Square
Leominster, Massachusetts 01453
(978) 534-1234

ZP-230

TABLE OF CONTENTS

COVER SHEET

TABLE OF CONTENTS

1.0 Drainage Narrative

- **1.1** Introduction
- **1.2** Methods of Analysis
- **1.3** Site Description
- **1.4** Runoff Curve Numbers
- **1.5** Design Criteria
- **1.6** Conclusions

2.0 Hydrological Calculations

- **2.1** Pre-Development Calculations
- **2.2** Post-Development Calculations

3.0 Storm Water Management Forms

- **3.1** Operation and Maintenance

Figures

Figure 1 - Locus Map & Soils Mapping
Figure 2 - Pre-Development Watershed Map
Figure 3 - Post-Development Watershed Map

1.0
DRAINAGE NARRATIVE

1.0 NARRATIVE

**Revised through November 9, 2018*

1.1 INTRODUCTION

On behalf of our client, ZPT Energy Solutions II, LLC, Hannigan Engineering, Inc. has prepared this ***Revised*** Drainage Analysis and Report as part of submittal package for a Site Plan Approval for the construction of a solar energy field in Leicester, Massachusetts. The project, *Boutilier Road Solar,* will be located at 500 Boutilier Road on proposed Lot #3, consisting of approximately 44.77 acres of land. The access to the solar field will be via a gravel access drive off of Boutilier Road and the solar field will occupy approximately 36.2 acres of land, including access drives, grading areas, and drainage infrastructure. This site is currently predominantly a mixture of grassland woodland areas with the surrounding area consisting of residential and other solar developments.

The purpose of this analysis is to compare the pre-development and post-development site drainage characteristics for this project. In particular, changes in peak rates of runoff generally associated with alterations of land use were studied. These alterations include land being transformed from areas of landscape (grass), woods, and brush to areas of grass, landscape, and impervious areas (rooftops, sidewalks and pavement). The effects of stormwater being re-directed to new areas as a result of the proposed construction and the associated drainage system were reviewed as well. For the purposes of this report, any developed areas which are not impervious will be considered to consist of lawn and landscape areas.

The U.S. Soil Conservation Sevice (SCS) methods were utilized for this analysis in order to establish land use and run-off characteristics in the determination of pre- and post-developement peak rates of runoff. All proposed development areas and subsequent impacts on stormwater runoff relative to this development have been incorporated within this analysis and report.

Drainage from the site currently flows to six drainage Design points adjacent to the project site. These drainage areas are located to the west of the Boutilier Road, to several low points along Boutilier Road Solar site along the northerly limits and to a low point at the southeasterly corner of Boutilier Road Solar. These locations are reviewed as design points for the analysis as described herein. The proposed drainage system will provide peak rate mitigation and compliance with Stormwater Management Regulations.

1.2 METHOD OF ANALYSIS

The enclosed hydrologic calculations utilize the runoff estimating techniques developed by the USDA Soil Conservation Service (SCS). The following websites and publications were used in the preparation of this report:

1. "Urban Hydrology for Small Watersheds"[1]
2. "National Engineering Handbook, Hydrology, Section 4" (NEH-4)[2]
3. "Handbook of Hydraulics" 6th ed. - E.F. Brater & H. Williams[3]
4. "Web Soil Survey" - USDA NRCS[4]

Using SCS publications and other texts on surface water hydrology, in conjunction with drainage software *HydroCAD* developed by Applied Microcomputer Systems[5], Hannigan Engineering has calculated peak rates of runoff relative to the subject site for conditions prior to development as well as conditions upon the completion of construction. The drainage software program *HydroCAD* calculates peak rates of runoff similarly to the computer program known as *Computer Programs for Project Formulations-Hydrology, Technical Release Number 20 (TR-20),* developed by SCS. This program and series of programs are the technical standard utilized by engineers, Planning Boards, Conservation Commission, and Municipal Agencies throughout the region and across the country for the evaluation of storm water conditions.

The analysis reviews certain parameters of sub-watersheds surrounding the subject site and how these parameters are affected by various rainfall conditions. These parameters include land cover and use, soil strata and permeability, and variations in slope. These parameters are used to develop rainfall runoff characteristics, which are used to analyze both pre and post development conditions within and surrounding the proposed construction activity. Some of these characteristics include times of concentration (Tc), peak rates of runoff, runoff volume, and the time the peak rate of runoff occurs within the particular storm event.

Times of concentration were computed by using the TR-55 Sheet flow procedure and TR-55 Shallow Concentrated Flow procedure were utilized for the analysis of the individual watersheds. These procedures compute the time of travel of storm waters over segments of the watershed depending upon land conditions, such as surface roughness, channel configuration, slope of land, and flow patterns. The addition of these travel times determines the individual watershed Time of Concentration. This method translates to more accurate Tc's than other more general methods.

1.3 SITE DESCRIPTION

As discussed above, Site Plan Approval is being sought for the construction of a solar energy field to the north of Boutilier Road. The property consists of approximately 44.77 acres and is currently woodland with some areas of vegetated wetland along the northern and southern property lines. The main access to the site will be from a gravel access drive which will extend north from Boutilier Road, along the southern limits of the project to provide access to the applicable electrical infrastructure. This drive will be utilized for construction access and upon the completion of construction will be utilized for periodic maintenance and inspections. The proposed electrical connection will be made the existing electrical infrastructure further north along Boutilier Road. The electrical connection will consist of primarly underground conduit which will bring the lines from the site to a series of utility poles will be constructed to provide the final overhead connection to the existing infrastructure.

The site is predominantly woodland areas with the surrounding area consisting of additional woodland and residental housing. On site areas that are wooded will require clearing of trees and brush for the construction. The alteration of land will be limited to approximately 36.2 acres of land, including access drives, grading areas, and drainage infrastructure. The remainder of the site will remain wooded which will provide a natural buffer from the adjacent properties to the north, south and west, as well as to the existing wetland areas. Appropriate erosion control measures will be installed as the site clearing progresses, prior to earth moving activities. Once the site is cleared, the land will be shaped to accept the solar installation as depicted on the grading plan.

As part of this construction, the site grading is proposed to direct a large amount of overland flows to one of four on-site detention basins and a settling basin within the limits of the project. These detention basins will provide peak rate mitigation from the changes in land use on the project as a result of the proposed construction. The detention basins will be constructed with a subdrain system to ensure that the basins remain dry between storm events, along with an outlet control structure and an emergency spillway.

As stated above, certain design points are reviewed where the existing drainage patterns direct stormwater over the property, and where proposed drainage configurations direct new stormwater flows at a common location. Recently an adjacent parcel was developed as solar by the applicant. During the review, it was found that some of the runoff from the immediate area surrounding Boutilier Road drained towards that project. These areas were added to the other contributing watersheds for this review. The Design Point that was directly impacted by this work was limited to DP#2.

In addition, it is the intent of the applicant to also construct an industrial subdivision roadway adjacent to this project. Due to the impending work, the Preliminary layout for the sudivision roadway and cooresponding drainage infrastructure has been included within this analysis to ensure the drainage system has capacity to accommodate the intended flows.

For the purpose of this new analysis, an additional five design points have been established. Design Point #12 (DP#12) was chosen as a wetland area lying along the northerly perimeter of the project. Design Points #13 (DP#13), #14 (DP#14) were found at low points along the westerly limits of the project and Design Points #15 (DP#15) and #16 (DP#16) at existing catchbasins within previously constructed Boutilier Road. Reference is mad to the watershed plans for the location of these design points

1.4 SOIL CHARACTERISTICS

Soil types for this analysis were based upon review of soils information contained in the SCS publication *Interim Soil Report for Worcester County, Massachusetts – Northwestern Part.* The original mapping has been reestablished via the Web Soil Survey as part of the National Cooperative Soil Survey under the Natural Resource Conservation Service and its website (http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx). This mapping is the basis for the soil type determinations for this analysis.

The soils are classified by number and name by SCS and, subsequently, the Hydrological Soil Group has been designated within the Urban Hydrology for Small Watersheds manual. Soils within the subject watersheds are also hydrologically classified into different soil groups as defined by the Soil Conservation Service. The following table provides the SCS Hydrological Soil Group classification for each soil type.

Soil Designation	Name	Hydrological Group
315B	Scituate-Fine Sandy Loam	C
405B/C	Charlton-Fine Sandy Loam	B
407B/C	Charlton-Fine sandy Loam	A
422C/E	Canton-Fine sandy Loam	B

1.5 RUNOFF CURVE NUMBERS

The SCS runoff curve numbers used in all watershed modeling contained in this report are based on the Hydrologic Soil Groups and land uses below:

Land Use	Hydrologic Soil Group	Curve #
Grass Cover, <75% (good)	A	39
Woods (good)	A	30
Brush (good)	A	30
Gravel Surface	A	96
Grass Cover, <75% (good)	B	61
Woods (good)	B	55
Brush (good)	B	48
Gravel Surface	B	85
Grass Cover, <75% (good)	C	74
Woods (good)	C	70
Brush (good)	C	65
Gravel Surface	C	96
Impervious Area	N/A	98

1.6 DESIGN CRITERIA

This drainage analysis was developed utilizing a Type III, 24-hour tropical storm as developed by SCS and required for this region. The storm frequencies and the corresponding 24-hour rainfall amounts are as follows:

Storm Frequency (years)	Rainfall (inches)
2	3.0
10	4.5
25	5.3
100	6.5

1.7 THE PROPOSED STORMWTER MANAGMENT SYSTEM

The proposed drainage system captures stormwater runoff from the site via overland flow directed to one of four detention basins and settling basin prior to discharge. The majority of the proposed development will be captured and directed to these detention basins, with the remainder flowing overland. Flow from these detention basins, will eventually make its way to one of the design points.

As with any development, changes in land use such as the transformation of woodland areas to lawn, landscape and impervious areas cause increased peak rates of runoff to the design points. These areas on this site consist of driveways and pad areas for transformers, as well as alterations in land use from woodland areas to open lawn and landscaped areas. In order to mitigate increases in peak rate of runoff, the site grading has been carefully designed to direct the

majority of these land alterations to the storm drainage system. The majority of the runoff will be captured via two 4-foot wide drainage swales which will direct stormwater towards a proposed detention basin located along the southerly limits of the project (Detention Basin #11). The remaining runoff will be captured via overland flow and directed to one of the remaining basins.

The detention basins will be equipped with a PVC sub-drain system and an outlet structure consisting of various orifices to control the discharge rate of the flow. During smaller storm events, the stormwater will back up in the detention basin controlled by the discharge flow allowed by the subdrain system and outlet control structure. Upon the completion of the storm event, these discharge control features will control the flow at or below pre-development rates until the stormwater has drained from the basin. It is noted that this subdrain system has a dual purpose of draining the basin between storm events and preventing groundwater from entering the basin from below. In addition to the subdrain and outlet structure of the detention basins, each basin will also be equipped with an emergency spillway. Based on the calculations, the emergency spillway will not experience flow in any storm event.

1.8 CONCLUSIONS

As stated above, six design points have been established at various locations surrounding the project. Changes in land use are the predominant cause of increases in peak rates of runoff to design points. In this case, much of the post-development runoff is directed to the north where runoff will be directed to one of four detention basins. These basins provide mitigation of peak rates to the northern and southern portions of the site. The results of the analysis are shown below.

Table 2:

Design Point		2-yr Storm	10-yr Storm	25-yr Storm	100-yr Storm
DP#12	Pre-	0.04	1.22	3.86	10.50
	Post-	0.04	1.19	3.29	8.21
DP#13	Pre-	0.18	2.33	4.48	8.45
	Post-	0.18	2.01	3.80	7.06
DP#14	Pre-	0.03	0.59	1.21	2.47
	Post-	0.04**	0.36	0.74	1.51
DP#15	Pre-	0.44	1.39	1.99	2.95
	Post-	0.36	1.27	1.85	2.80
DP#16	Pre-	0.32	1.61	2.51	4.03
	Post-	0.25	1.04	1.58	2.49
DP#2	Pre-	0.00	0.53	1.44	4.89
	Post-	0.00	0.31	0.91	3.21

All flows are in cubic feet per second.
***De minimus increase*

It is also noted that the peak rate of runoff do Design Point #14 experiences a net increase 0.01 c.f.s. during the 2-year storm event. As this increase is less than 1.0 c.f.s., the overall increase would be considered *de minimus*.

For all other design points, mitigation of post development peak rates of runoff have been mitigated. This assures that no adverse impacts to abutting properties relative to increases in peak rates of runoff will occur due to the proposed development upon the completion of construction. The stormwater management as outlined herein and as shown on the accompanying plans has the following positive values relative to storm water management:

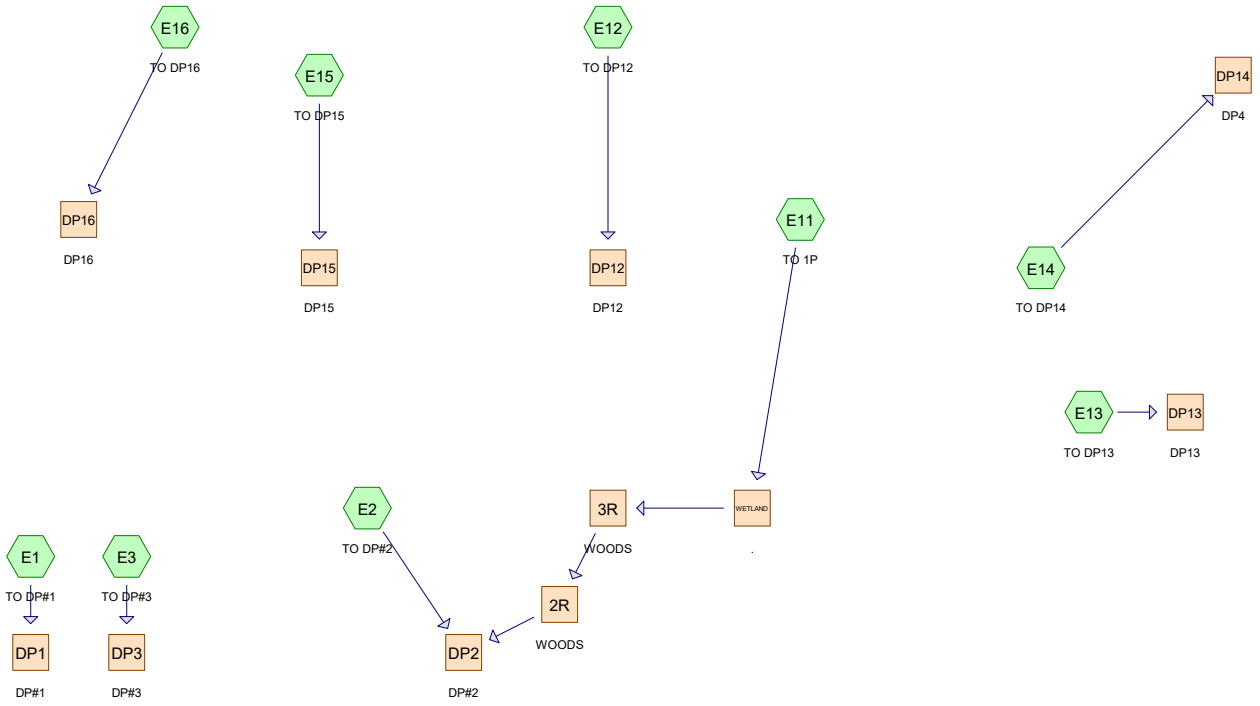
A) Attenuation of the 2-, 10-, 25- and 100-year storm events has mitigated increases in peak rates of runoff, or has been justified herein.
B) The development adheres to the provisions of the Massachusetts Stormwater Management program with greater than 80% TSS removal.
C) The Stormwater Operation and Maintenance Plan (OMP) attached, has been prepared to ensure long-term function of the system, as designed.

---

[1]"Urban Hydrology for Small Watersheds (Technical Release Number 55); Engineering Division, United States Dept. of Agriculture ,Soil Conservation Service (Jan. 1975)
[2]"National Engineering Handbook Section 4- Hydrology" ; United States Dept. of Agriculture, Soil Conservation Service (March 1985)
[3]"Handbook of Hydraulics" - 6th ed., E.F. Brater & H. Williams (1976)
[4]"Interim Soil Report for Worcester County – Southern Part" Published by the Southern Worcester County Conservation District, in cooperation with the United States Department of Agriculture, Natural Resources Conservation Service
[5] "HydroCAD" Drainage software developed by Applied Microcomputer, Page Hill Road, Chocorua, NH

2.0
HYDROLOGICAL CALCULATIONS

2.1
PRE-DEVELOPMENT CALCULATIONS



Subcat Reach Pond Link

Routing Diagram for 2719-Boutlier Pre-CMA
Prepared by {enter your company name here}, Printed 9/12/2018
HydroCAD® 10.00-12 s/n 00840 © 2014 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
3.523	39	>75% Grass cover, Good, HSG A (E11, E12, E2, E3)
7.403	61	>75% Grass cover, Good, HSG B (E1, E11, E12, E15, E16, E2)
0.301	74	>75% Grass cover, Good, HSG C (E11, E2)
12.977	30	Brush, Good, HSG A (E1, E2)
4.318	65	Brush, Good, HSG C (E1, E2)
0.448	76	Gravel roads, HSG A (E1, E2)
0.078	96	Gravel surface, HSG A (E11)
0.045	96	Gravel surface, HSG B (E11)
0.044	96	Gravel surface, HSG C (E11)
0.078	98	Paved parking, HSG A (E2, E3)
0.449	98	Paved parking, HSG B (E1, E15, E16, E2)
0.076	98	Paved parking, HSG C (E2)
68.330	30	Woods, Good, HSG A (E1, E11, E12, E13, E14, E2, E3)
23.065	55	Woods, Good, HSG B (E1, E11, E12, E13, E14, E15, E16, E2)
7.888	70	Woods, Good, HSG C (E1, E11, E2)
2.888	77	Woods, Good, HSG D (E1)
131.911	**42**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
85.434	HSG A	E1, E11, E12, E13, E14, E2, E3
30.961	HSG B	E1, E11, E12, E13, E14, E15, E16, E2
12.628	HSG C	E1, E11, E2
2.888	HSG D	E1
0.000	Other	
131.911		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
3.523	7.403	0.301	0.000	0.000	11.226	>75% Grass cover, Good	E1, E11, E12, E15, E16, E2, E3
12.977	0.000	4.318	0.000	0.000	17.295	Brush, Good	E1, E2
0.448	0.000	0.000	0.000	0.000	0.448	Gravel roads	E1, E2
0.078	0.045	0.044	0.000	0.000	0.166	Gravel surface	E11
0.078	0.449	0.076	0.000	0.000	0.604	Paved parking	E1, E15, E16, E2, E3
68.330	23.065	7.888	2.888	0.000	102.172	Woods, Good	E1, E11, E12, E13, E14, E15, E16, E2, E3
85.434	**30.961**	**12.628**	**2.888**	**0.000**	**131.911**	**TOTAL AREA**	

Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment E1: TO DP#1 Runoff Area=1,177,737 sf 0.03% Impervious Runoff Depth=0.02"
Flow Length=1,210' Tc=15.4 min CN=45 Runoff=0.08 cfs 0.054 af

Subcatchment E11: TO 1P Runoff Area=952,607 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=1,750' Tc=44.7 min CN=34 Runoff=0.00 cfs 0.000 af

Subcatchment E12: TO DP12 Runoff Area=1,284,712 sf 0.00% Impervious Runoff Depth=0.01"
Flow Length=1,458' Tc=36.2 min CN=43 Runoff=0.04 cfs 0.022 af

Subcatchment E13: TO DP13 Runoff Area=309,709 sf 0.00% Impervious Runoff Depth=0.13"
Flow Length=401' Tc=15.8 min CN=52 Runoff=0.16 cfs 0.076 af

Subcatchment E14: TO DP14 Runoff Area=124,074 sf 0.00% Impervious Runoff Depth=0.07"
Flow Length=608' Tc=20.4 min CN=49 Runoff=0.03 cfs 0.018 af

Subcatchment E15: TO DP15 Runoff Area=42,393 sf 15.50% Impervious Runoff Depth=0.54"
Flow Length=187' Tc=7.9 min CN=66 Runoff=0.44 cfs 0.044 af

Subcatchment E16: TO DP16 Runoff Area=86,344 sf 6.47% Impervious Runoff Depth=0.33"
Flow Length=642' Tc=12.1 min CN=60 Runoff=0.33 cfs 0.055 af

Subcatchment E2: TO DP#2 Runoff Area=1,642,074 sf 0.65% Impervious Runoff Depth=0.00"
Flow Length=2,664' Tc=74.2 min CN=39 Runoff=0.00 cfs 0.000 af

Subcatchment E3: TO DP#3 Runoff Area=126,402 sf 2.47% Impervious Runoff Depth=0.00"
Flow Length=397' Slope=0.0450 '/' Tc=17.8 min CN=34 Runoff=0.00 cfs 0.000 af

Reach 2R: WOODS Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.400 L=1,143.0' S=0.0210 '/' Capacity=34.20 cfs Outflow=0.00 cfs 0.000 af

Reach 3R: WOODS Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.400 L=75.0' S=0.0800 '/' Capacity=66.76 cfs Outflow=0.00 cfs 0.000 af

Reach DP1: DP#1 Inflow=0.08 cfs 0.054 af
Outflow=0.08 cfs 0.054 af

Reach DP12: DP12 Inflow=0.04 cfs 0.022 af
Outflow=0.04 cfs 0.022 af

Reach DP13: DP13 Inflow=0.16 cfs 0.076 af
Outflow=0.16 cfs 0.076 af

Reach DP14: DP4 Inflow=0.03 cfs 0.018 af
Outflow=0.03 cfs 0.018 af

Reach DP15: DP15 Inflow=0.44 cfs 0.044 af
Outflow=0.44 cfs 0.044 af

Reach DP16: DP16 Inflow=0.33 cfs 0.055 af
Outflow=0.33 cfs 0.055 af

Reach DP2: DP#2 Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Reach DP3: DP#3 Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Reach WETLAND: . Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Total Runoff Area = 131.911 ac Runoff Volume = 0.269 af Average Runoff Depth = 0.02"
99.54% Pervious = 131.307 ac 0.46% Impervious = 0.604 ac

Summary for Subcatchment E1: TO DP#1

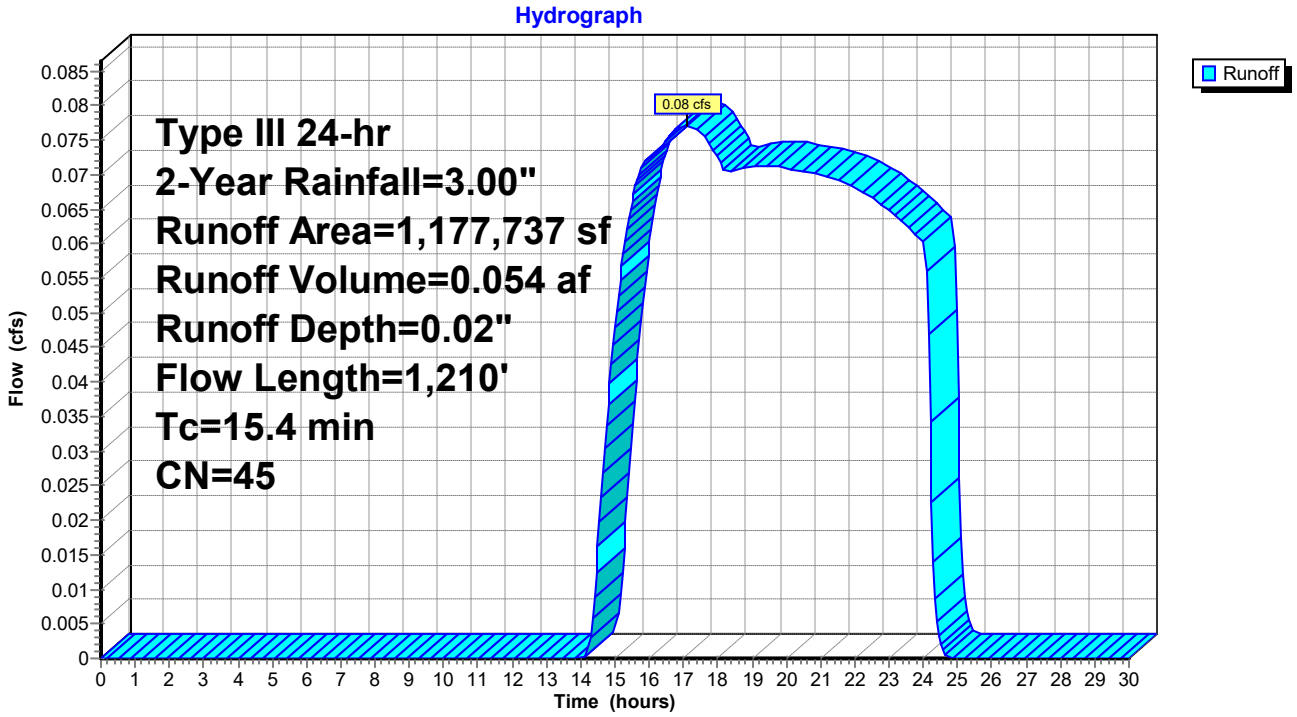
Runoff = 0.08 cfs @ 17.08 hrs, Volume= 0.054 af, Depth= 0.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.00"

Area (sf)	CN	Description
151,677	30	Brush, Good, HSG A
588,429	30	Woods, Good, HSG A
176,386	65	Brush, Good, HSG C
118,566	70	Woods, Good, HSG C
3,044	76	Gravel roads, HSG A
125,807	77	Woods, Good, HSG D
8,101	61	>75% Grass cover, Good, HSG B
5,424	55	Woods, Good, HSG B
303	98	Paved parking, HSG B
1,177,737	45	Weighted Average
1,177,434		99.97% Pervious Area
303		0.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.7	75	0.0760	0.27		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.2	56	0.0760	4.44		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.0	283	0.0860	4.72		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
5.9	592	0.1100	1.66		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.6	204	0.0350	0.94		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.4	1,210	Total			

Subcatchment E1: TO DP#1



Summary for Subcatchment E11: TO 1P

[45] Hint: Runoff=Zero

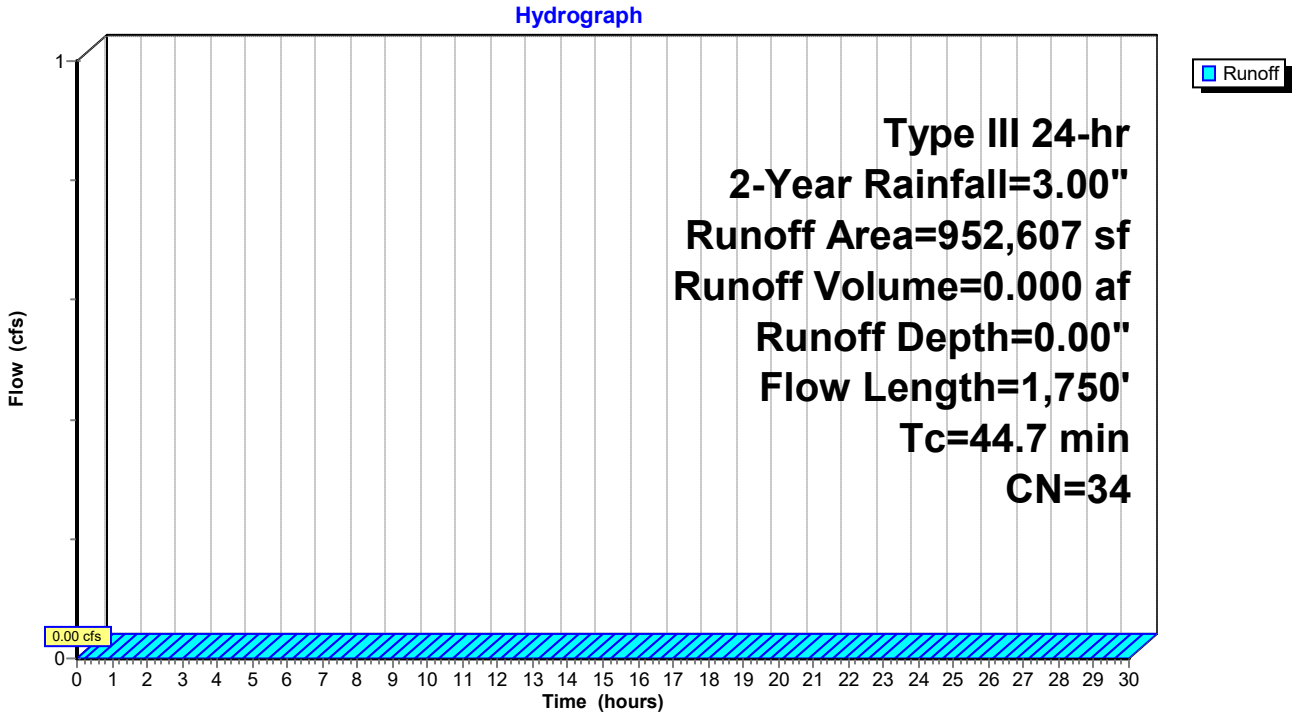
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.00"

Area (sf)	CN	Description
48,242	39	>75% Grass cover, Good, HSG A
806,992	30	Woods, Good, HSG A
3,389	96	Gravel surface, HSG A
30,698	61	>75% Grass cover, Good, HSG B
40,984	55	Woods, Good, HSG B
1,942	96	Gravel surface, HSG B
5,602	74	>75% Grass cover, Good, HSG C
12,838	70	Woods, Good, HSG C
1,920	96	Gravel surface, HSG C
952,607	34	Weighted Average
952,607		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.2	75	0.0410	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
4.5	254	0.0360	0.95		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.5	52	0.1150	1.70		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.7	46	0.0430	1.04		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.0	95	0.1050	1.62		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
11.2	626	0.0350	0.94		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.5	93	0.0310	2.83		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
4.4	258	0.0390	0.99		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
6.7	128	0.0040	0.32		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.8	108	0.0040	1.02		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.2	15	0.0040	1.28		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
44.7	1,750	Total			

Subcatchment E11: TO 1P



Summary for Subcatchment E12: TO DP12

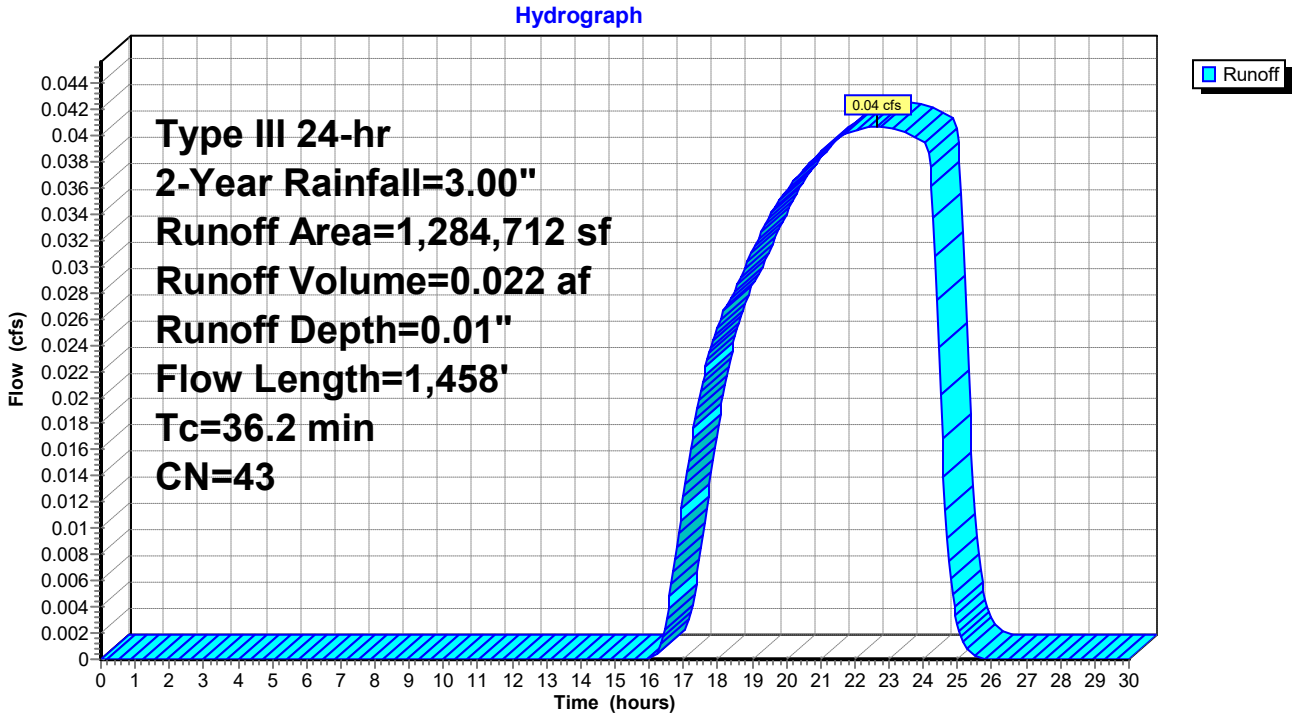
Runoff = 0.04 cfs @ 22.65 hrs, Volume= 0.022 af, Depth= 0.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.00"

Area (sf)	CN	Description
53,655	39	>75% Grass cover, Good, HSG A
607,934	30	Woods, Good, HSG A
127,280	61	>75% Grass cover, Good, HSG B
495,843	55	Woods, Good, HSG B
1,284,712	43	Weighted Average
1,284,712		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	75	0.0500	0.22		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
1.1	242	0.0500	3.60		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
8.7	601	0.0530	1.15		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
20.8	540	0.0075	0.43		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
36.2	1,458	Total			

Subcatchment E12: TO DP12



Summary for Subcatchment E13: TO DP13

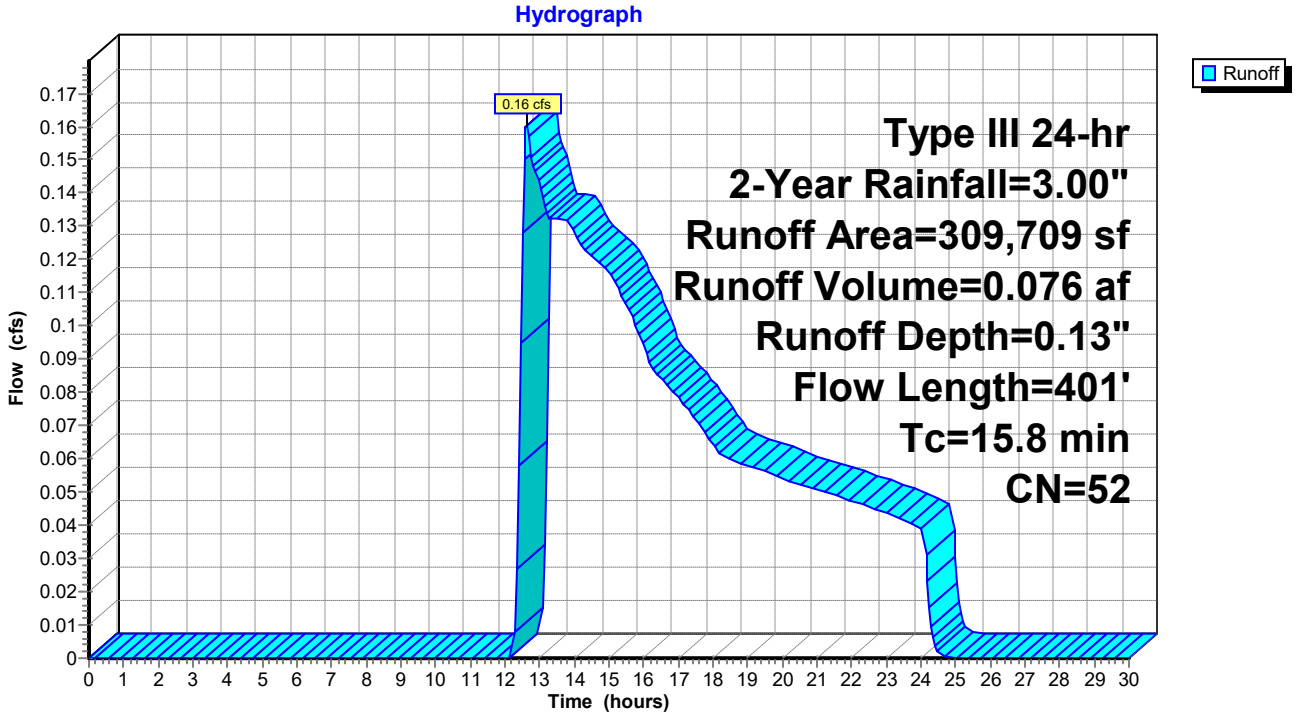
Runoff = 0.16 cfs @ 12.62 hrs, Volume= 0.076 af, Depth= 0.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.00"

Area (sf)	CN	Description
33,614	30	Woods, Good, HSG A
276,095	55	Woods, Good, HSG B
309,709	52	Weighted Average
309,709		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	75	0.0480	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
0.8	51	0.0480	1.10		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.0	90	0.0890	1.49		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.6	185	0.1410	1.88		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.8	401	Total			

Subcatchment E13: TO DP13



Summary for Subcatchment E14: TO DP14

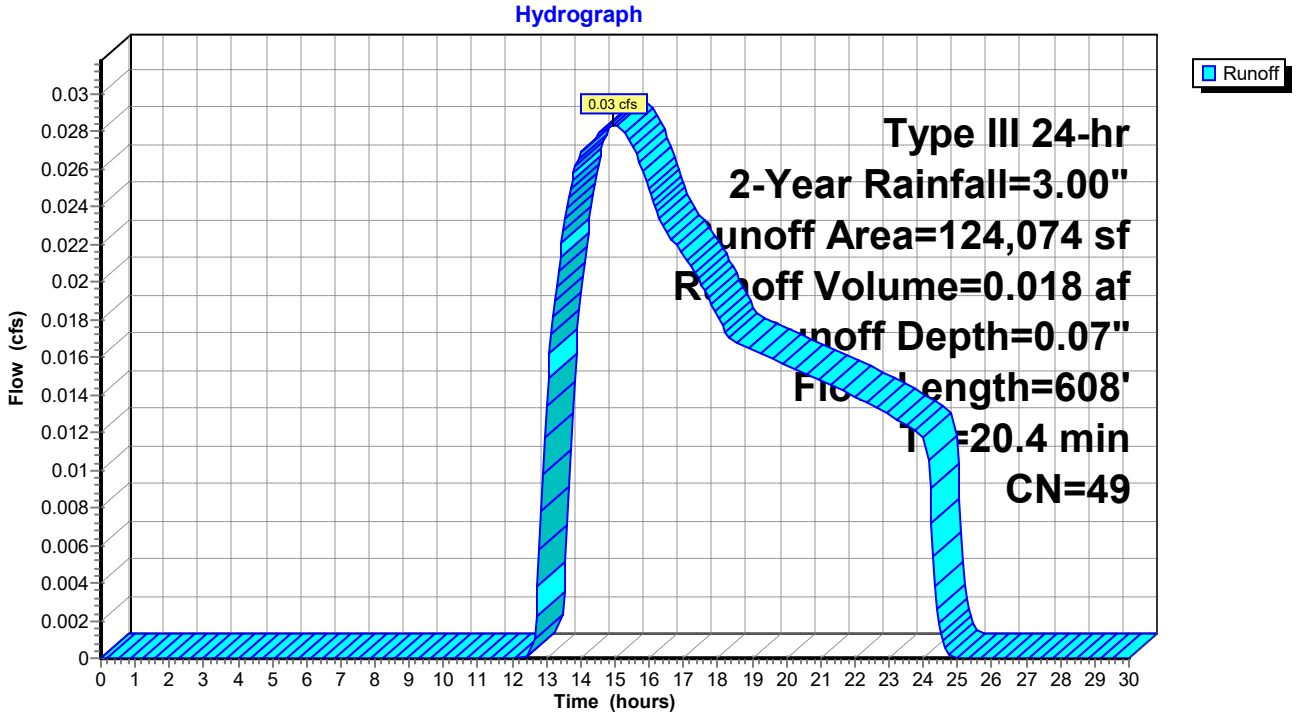
Runoff = 0.03 cfs @ 14.92 hrs, Volume= 0.018 af, Depth= 0.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.00"

Area (sf)	CN	Description
27,356	30	Woods, Good, HSG A
96,718	55	Woods, Good, HSG B
124,074	49	Weighted Average
124,074		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.6	75	0.0380	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
4.1	293	0.0560	1.18		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.0	124	0.1770	2.10		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.7	116	0.0500	1.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
20.4	608	Total			

Subcatchment E14: TO DP14



Summary for Subcatchment E15: TO DP15

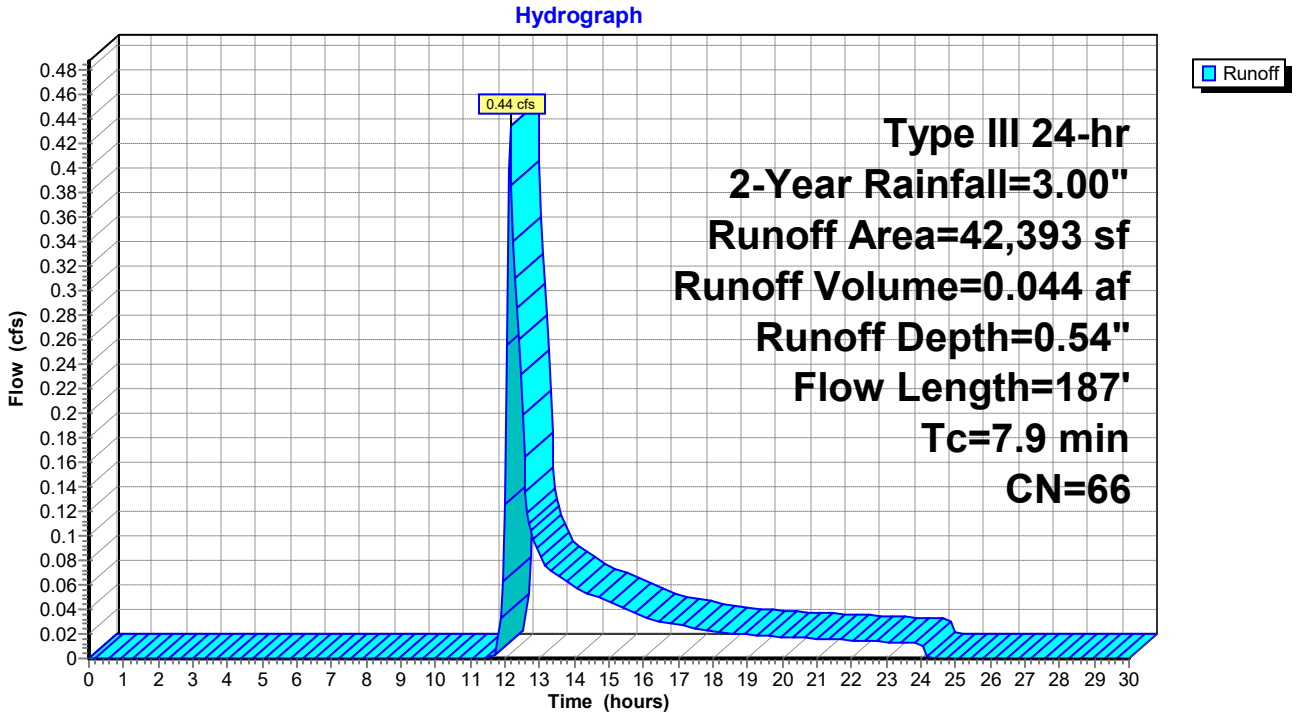
Runoff = 0.44 cfs @ 12.15 hrs, Volume= 0.044 af, Depth= 0.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.00"

Area (sf)	CN	Description
31,968	61	>75% Grass cover, Good, HSG B
3,854	55	Woods, Good, HSG B
6,571	98	Paved parking, HSG B
42,393	66	Weighted Average
35,822		84.50% Pervious Area
6,571		15.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	67	0.0300	0.18		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.8	8	0.0800	0.17		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.2	48	0.0800	4.55		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.2	19	0.0800	1.41		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.5	45	0.1110	1.67		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
7.9	187	Total			

Subcatchment E15: TO DP15



Summary for Subcatchment E16: TO DP16

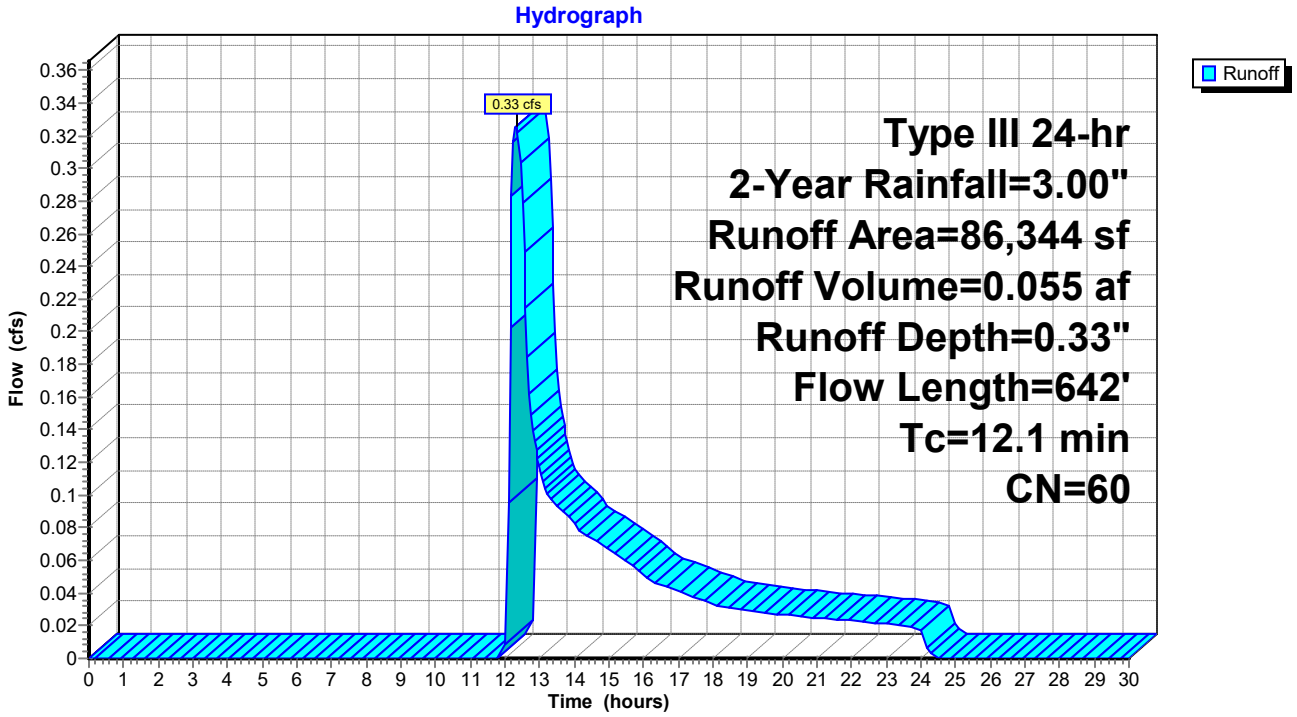
Runoff = 0.33 cfs @ 12.33 hrs, Volume= 0.055 af, Depth= 0.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.00"

Area (sf)	CN	Description
30,763	61	>75% Grass cover, Good, HSG B
49,996	55	Woods, Good, HSG B
5,585	98	Paved parking, HSG B
86,344	60	Weighted Average
80,759		93.53% Pervious Area
5,585		6.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	75	0.0580	0.24		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.0	10	0.0580	3.88		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.4	76	0.0400	3.22		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
2.1	126	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.8	84	0.0240	0.77		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	42	0.0690	4.23		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.3	103	0.0690	1.31		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	56	0.1070	1.64		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	26	0.3080	2.77		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	44	0.0450	4.31		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
12.1	642	Total			

Subcatchment E16: TO DP16



Summary for Subcatchment E2: TO DP#2

[45] Hint: Runoff=Zero

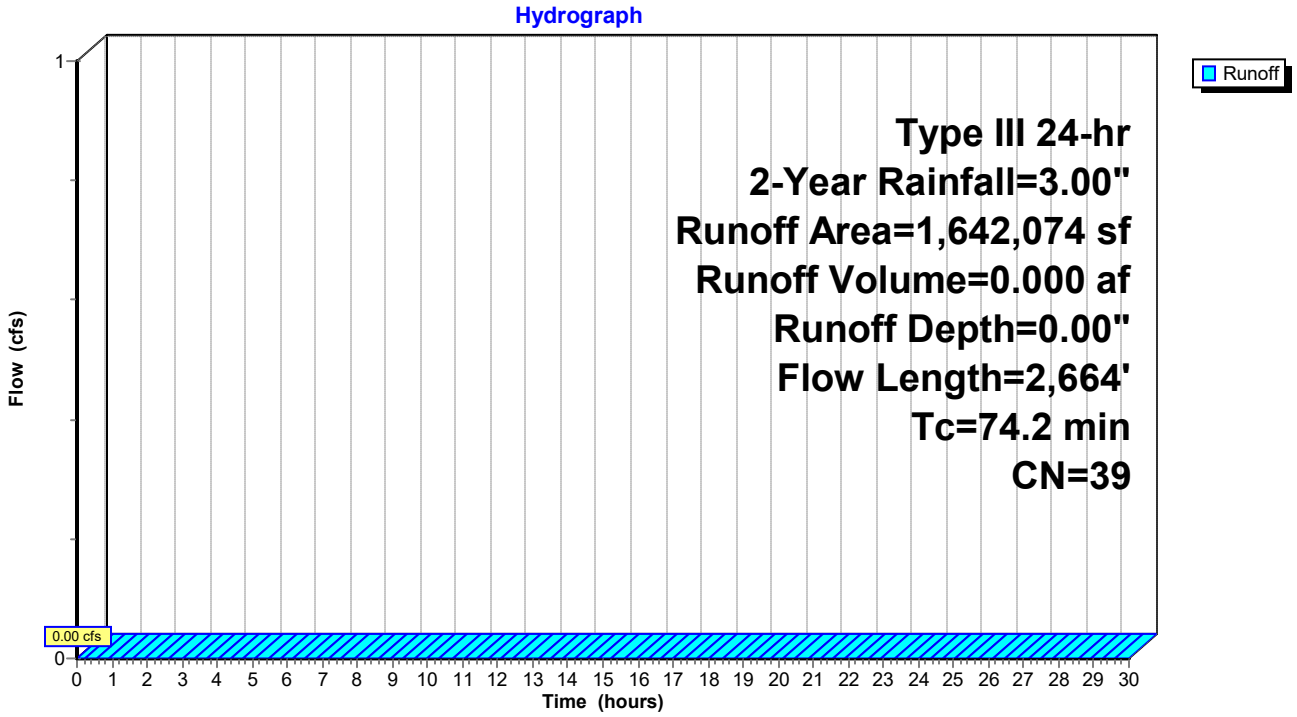
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.00"

Area (sf)	CN	Description
413,595	30	Brush, Good, HSG A
828,219	30	Woods, Good, HSG A
16,467	76	Gravel roads, HSG A
11,726	65	Brush, Good, HSG C
182,165	70	Woods, Good, HSG C
12,185	39	>75% Grass cover, Good, HSG A
290	98	Paved parking, HSG A
93,643	61	>75% Grass cover, Good, HSG B
35,816	55	Woods, Good, HSG B
7,095	98	Paved parking, HSG B
7,500	74	>75% Grass cover, Good, HSG C
30,041	70	Woods, Good, HSG C
3,332	98	Paved parking, HSG C
1,642,074	39	Weighted Average
1,631,357		99.35% Pervious Area
10,717		0.65% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.7	75	0.0750	0.26		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.2	52	0.0750	4.41		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.6	178	0.0900	4.83		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
7.7	463	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
14.5	475	0.0120	0.55		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
29.6	778	0.0077	0.44		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
16.9	643	0.0160	0.63		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
74.2	2,664	Total			

Subcatchment E2: TO DP#2



Summary for Subcatchment E3: TO DP#3

[45] Hint: Runoff=Zero

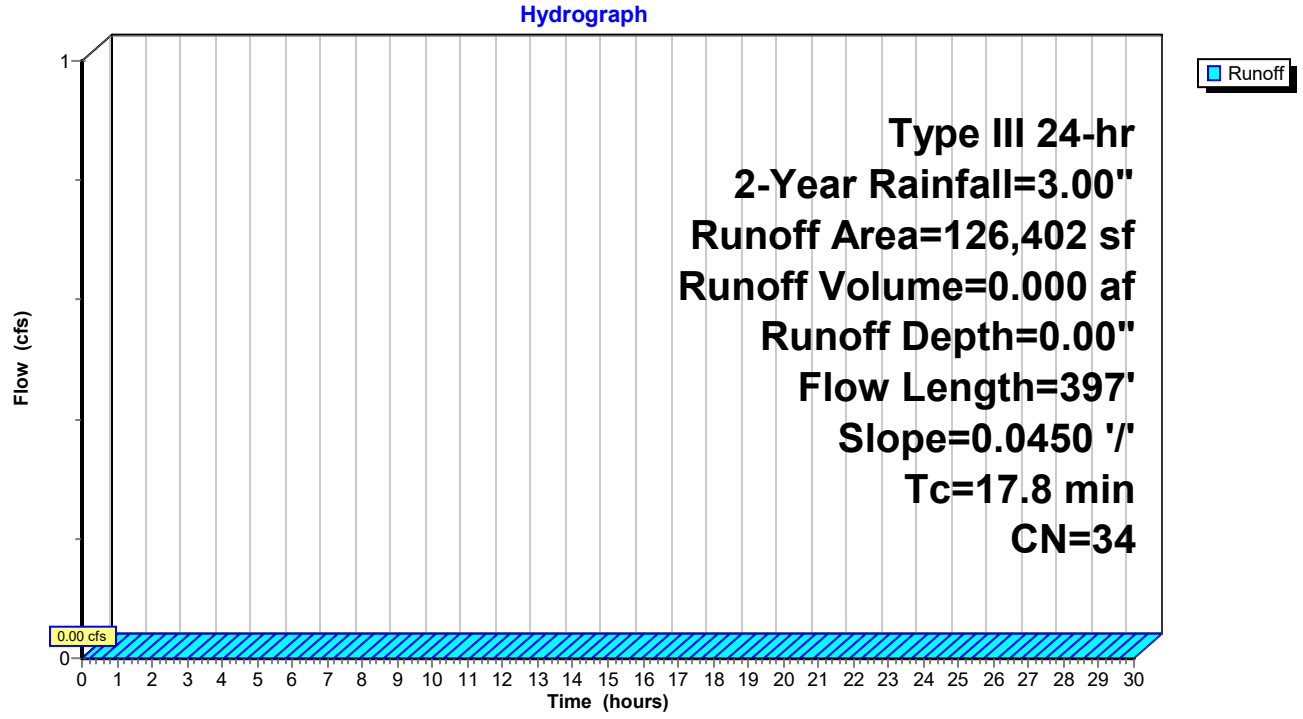
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.00"

Area (sf)	CN	Description
39,374	39	>75% Grass cover, Good, HSG A
83,903	30	Woods, Good, HSG A
3,125	98	Paved parking, HSG A
126,402	34	Weighted Average
123,277		97.53% Pervious Area
3,125		2.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.7	75	0.0450	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
5.1	322	0.0450	1.06		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
17.8	397	Total			

Subcatchment E3: TO DP#3



Summary for Reach 2R: WOODS

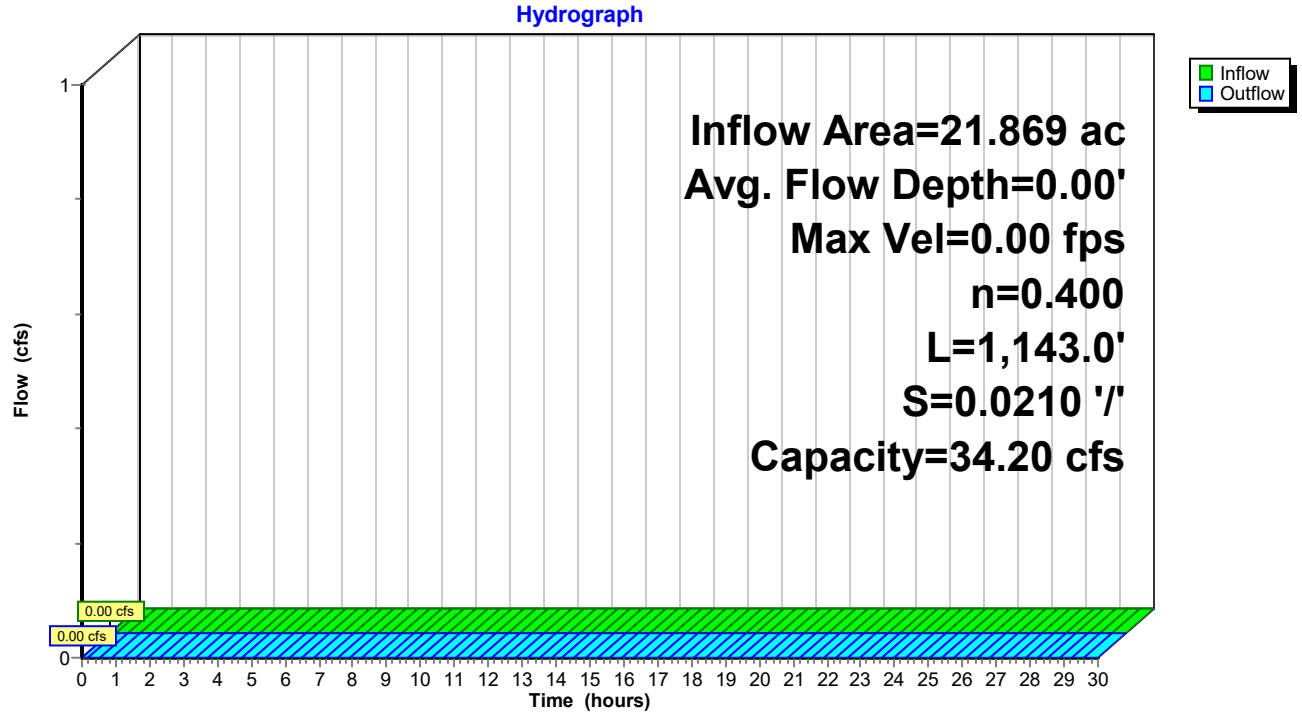
Inflow Area = 21.869 ac, 0.00% Impervious, Inflow Depth = 0.00" for 2-Year event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 34.20 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 1,143.0' Slope= 0.0210 '/'
Inlet Invert= 862.00', Outlet Invert= 838.00'

Reach 2R: WOODS



Summary for Reach 3R: WOODS

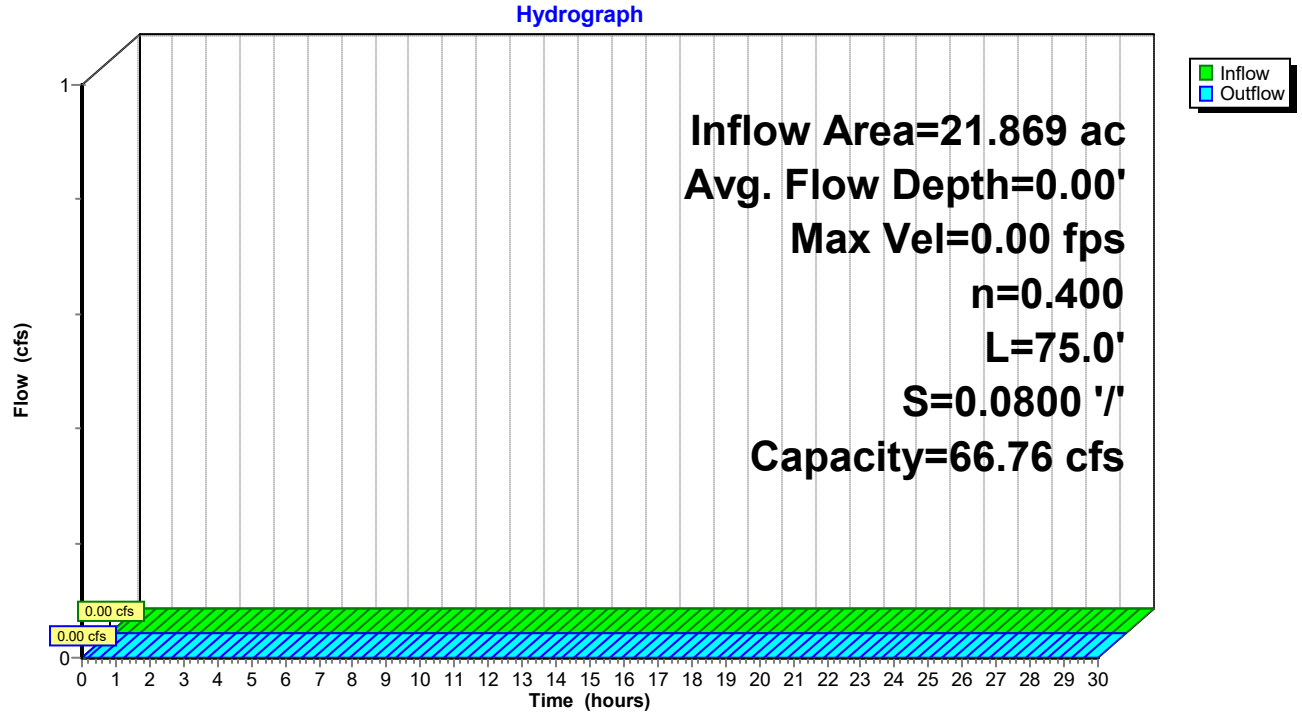
Inflow Area = 21.869 ac, 0.00% Impervious, Inflow Depth = 0.00" for 2-Year event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 66.76 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 75.0' Slope= 0.0800 '/'
Inlet Invert= 868.00', Outlet Invert= 862.00'

Reach 3R: WOODS



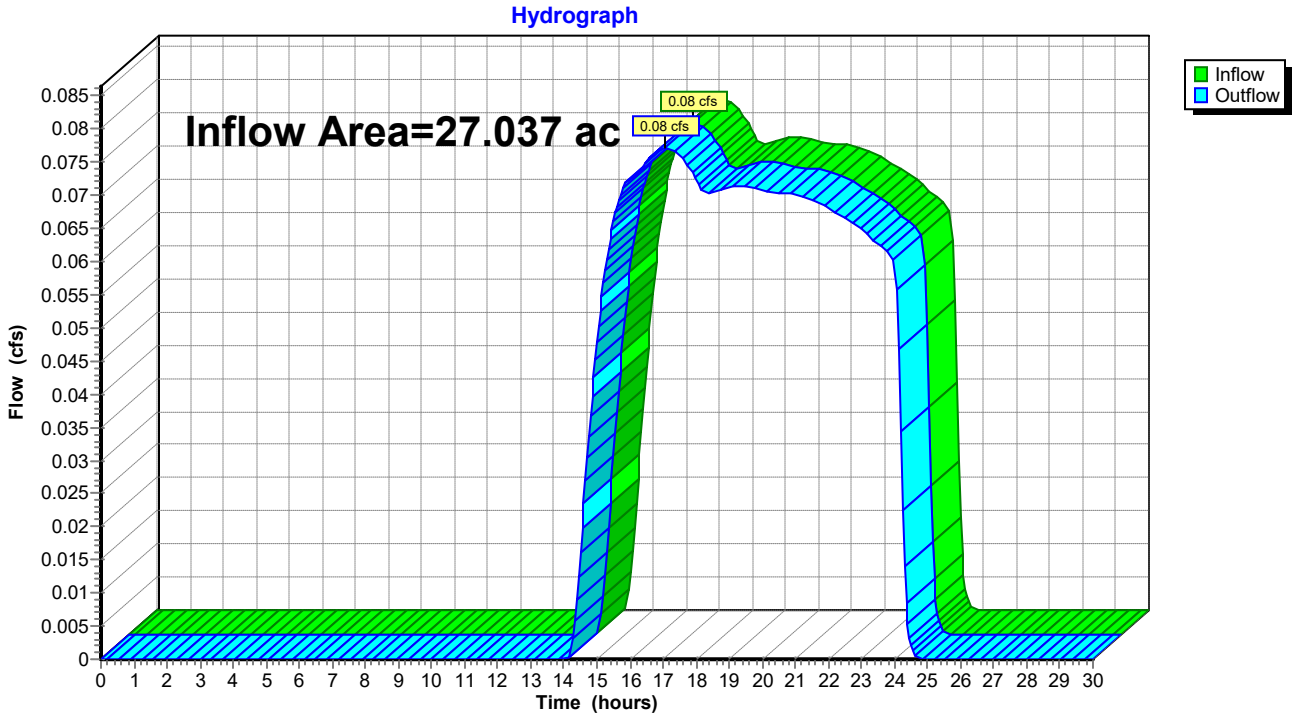
Summary for Reach DP1: DP#1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 27.037 ac, 0.03% Impervious, Inflow Depth = 0.02" for 2-Year event
Inflow = 0.08 cfs @ 17.08 hrs, Volume= 0.054 af
Outflow = 0.08 cfs @ 17.08 hrs, Volume= 0.054 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP1: DP#1



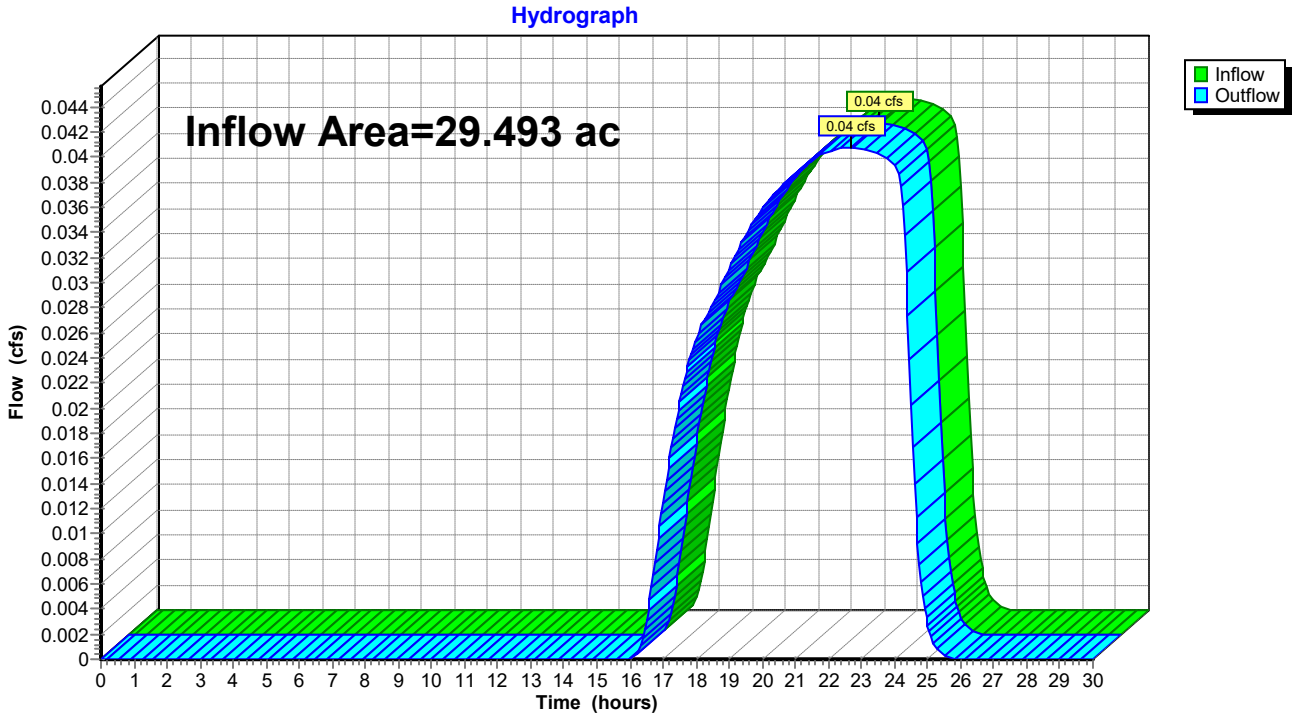
Summary for Reach DP12: DP12

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 29.493 ac, 0.00% Impervious, Inflow Depth = 0.01" for 2-Year event
Inflow = 0.04 cfs @ 22.65 hrs, Volume= 0.022 af
Outflow = 0.04 cfs @ 22.65 hrs, Volume= 0.022 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP12: DP12



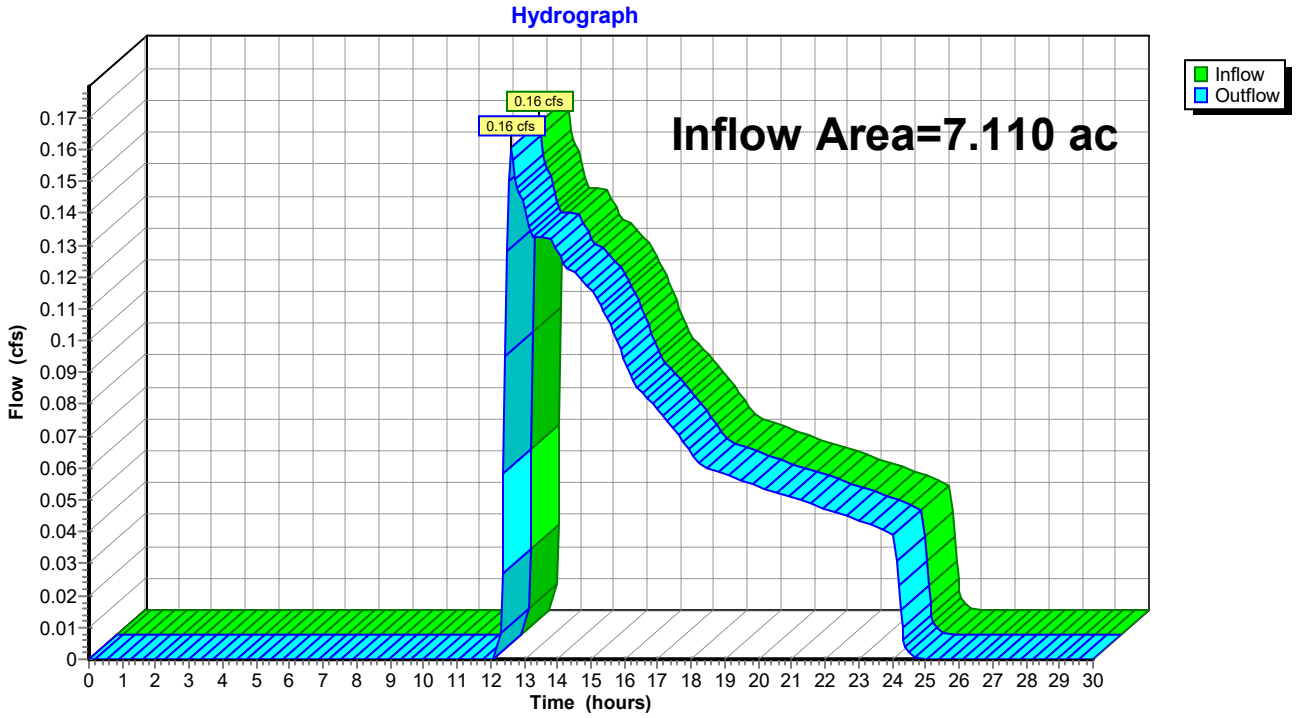
Summary for Reach DP13: DP13

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 7.110 ac, 0.00% Impervious, Inflow Depth = 0.13" for 2-Year event
Inflow = 0.16 cfs @ 12.62 hrs, Volume= 0.076 af
Outflow = 0.16 cfs @ 12.62 hrs, Volume= 0.076 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP13: DP13



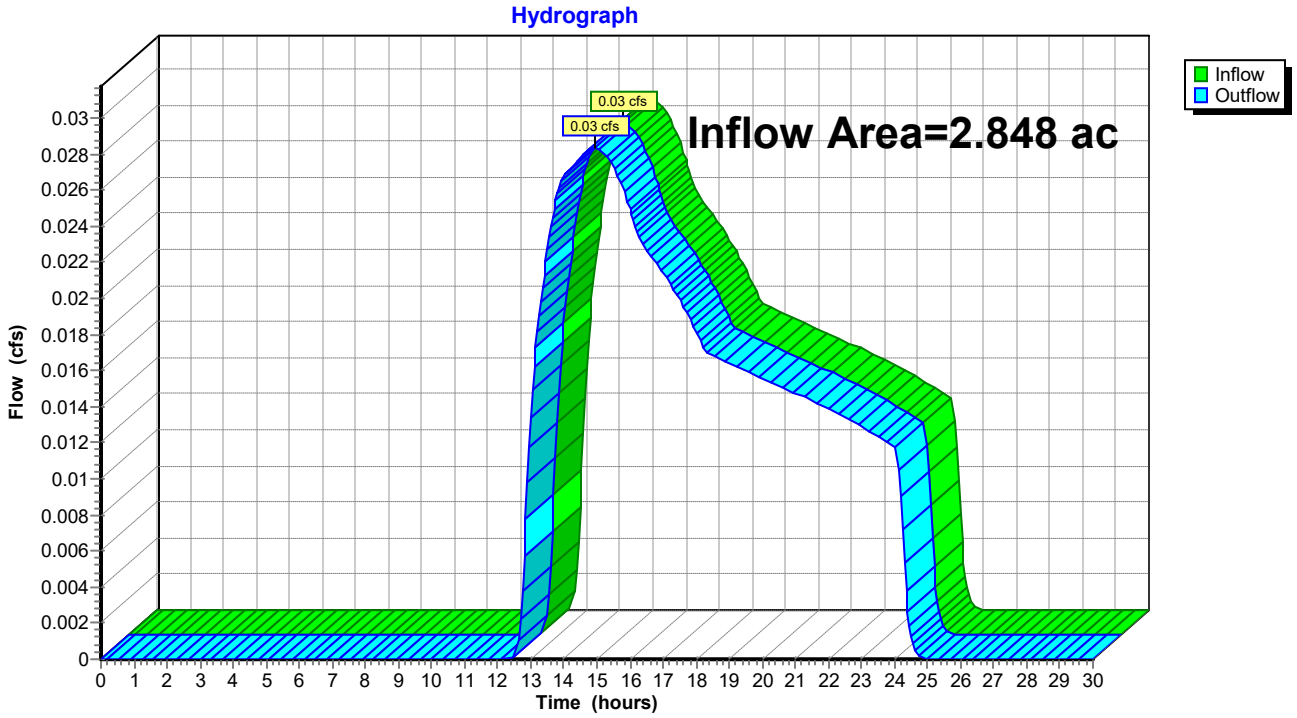
Summary for Reach DP14: DP4

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 2.848 ac, 0.00% Impervious, Inflow Depth = 0.07" for 2-Year event
Inflow = 0.03 cfs @ 14.92 hrs, Volume= 0.018 af
Outflow = 0.03 cfs @ 14.92 hrs, Volume= 0.018 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP14: DP4



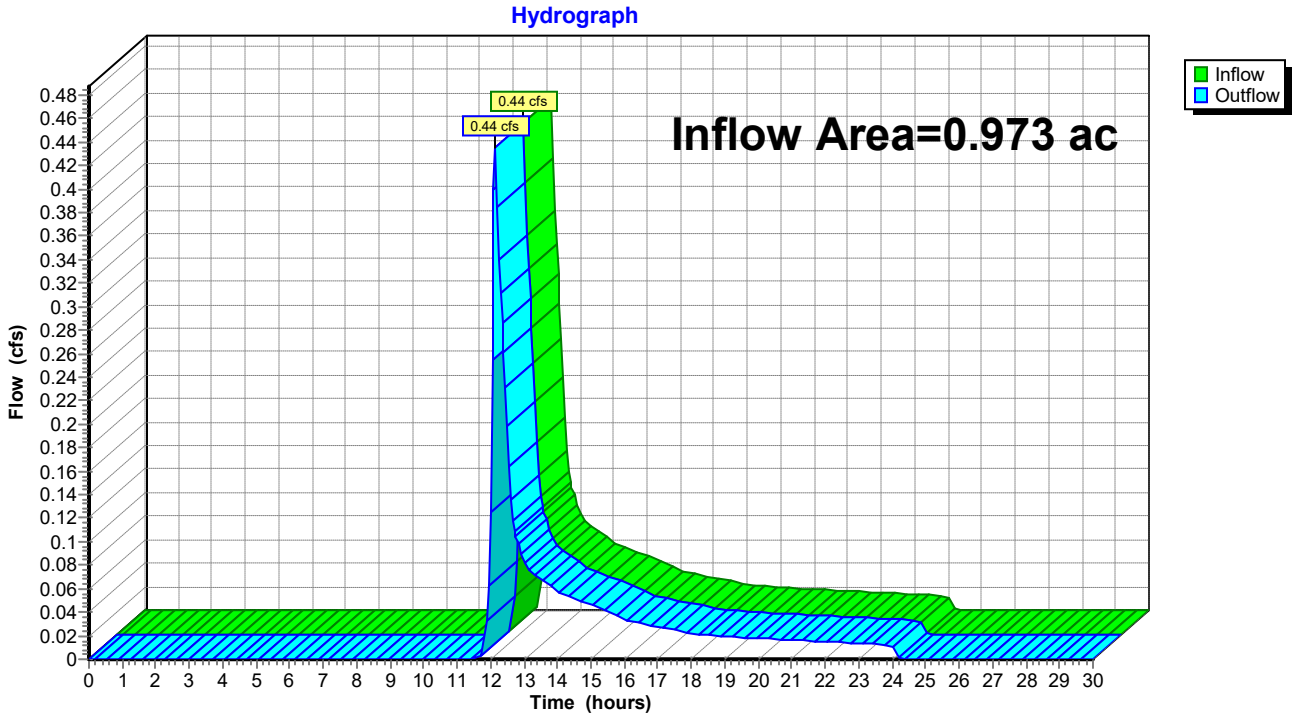
Summary for Reach DP15: DP15

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.973 ac, 15.50% Impervious, Inflow Depth = 0.54" for 2-Year event
Inflow = 0.44 cfs @ 12.15 hrs, Volume= 0.044 af
Outflow = 0.44 cfs @ 12.15 hrs, Volume= 0.044 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP15: DP15



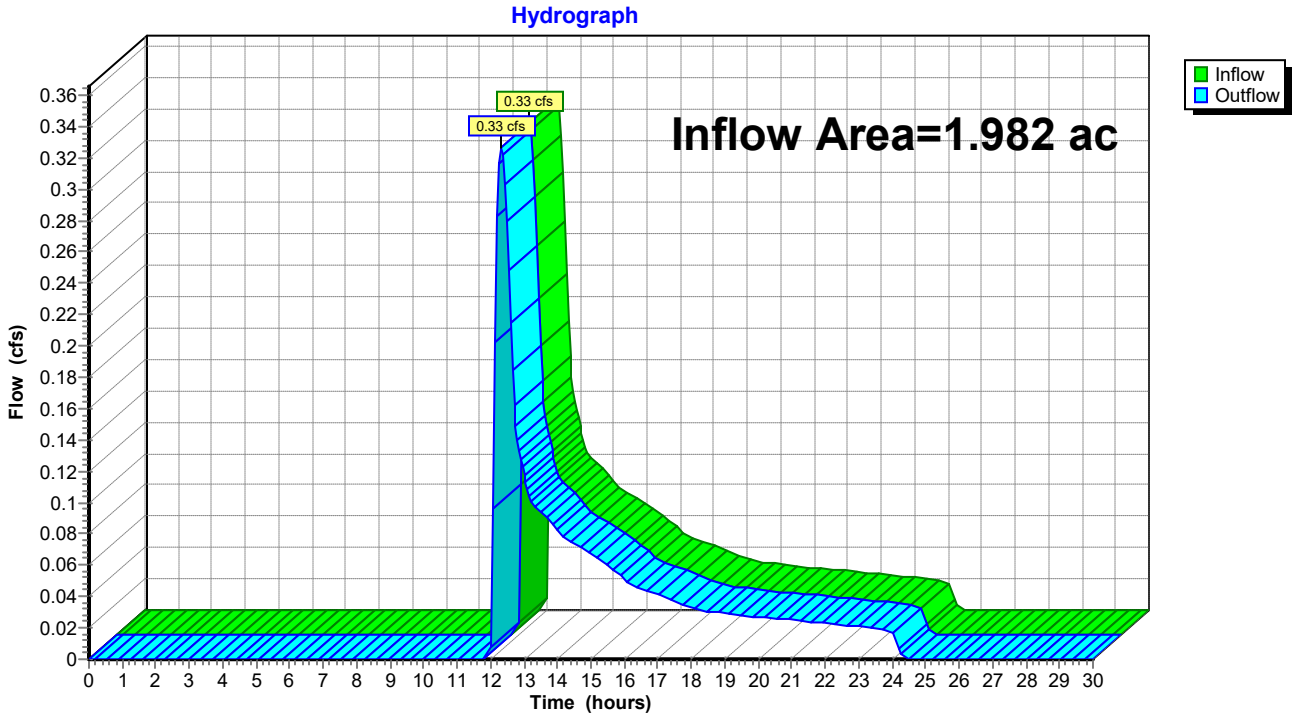
Summary for Reach DP16: DP16

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.982 ac, 6.47% Impervious, Inflow Depth = 0.33" for 2-Year event
Inflow = 0.33 cfs @ 12.33 hrs, Volume= 0.055 af
Outflow = 0.33 cfs @ 12.33 hrs, Volume= 0.055 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP16: DP16



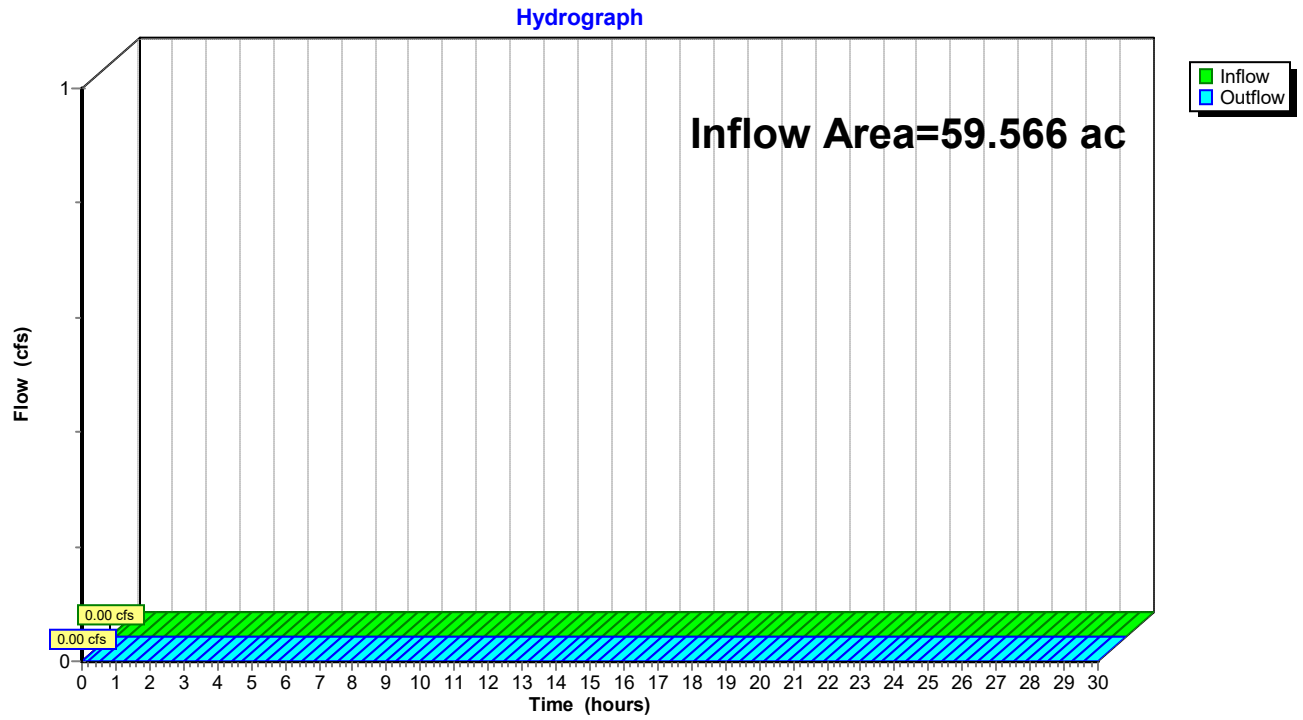
Summary for Reach DP2: DP#2

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 59.566 ac, 0.41% Impervious, Inflow Depth = 0.00" for 2-Year event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP2: DP#2



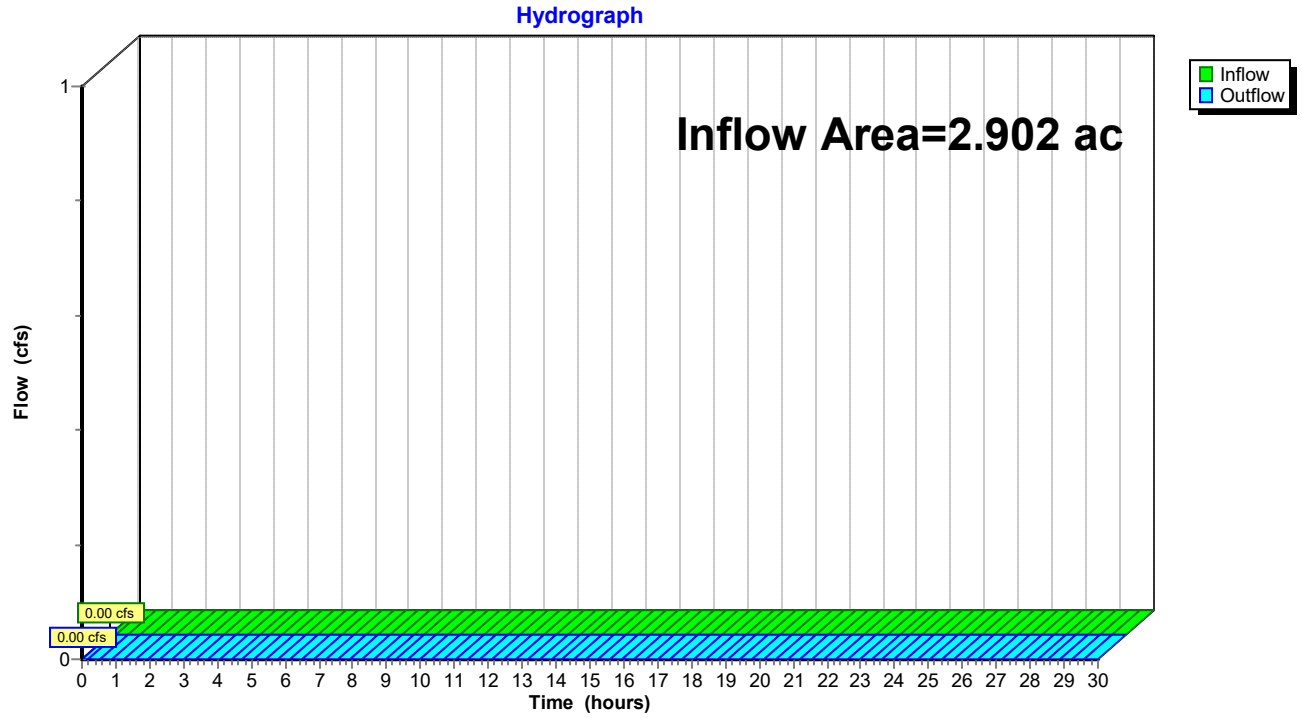
Summary for Reach DP3: DP#3

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 2.902 ac, 2.47% Impervious, Inflow Depth = 0.00" for 2-Year event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP3: DP#3



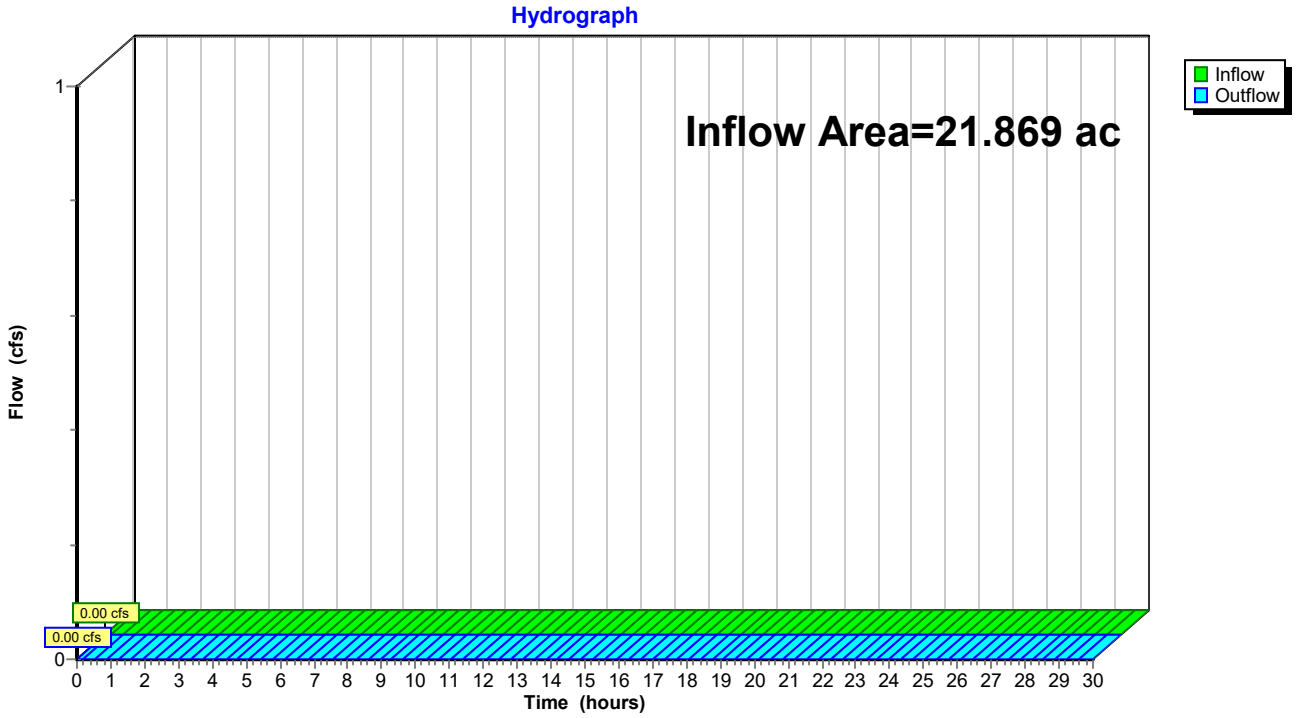
Summary for Reach WETLAND: .

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 21.869 ac, 0.00% Impervious, Inflow Depth = 0.00" for 2-Year event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach WETLAND: .



Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment E1: TO DP#1 Runoff Area=1,177,737 sf 0.03% Impervious Runoff Depth=0.30"
Flow Length=1,210' Tc=15.4 min CN=45 Runoff=2.55 cfs 0.667 af

Subcatchment E11: TO 1P Runoff Area=952,607 sf 0.00% Impervious Runoff Depth=0.02"
Flow Length=1,750' Tc=44.7 min CN=34 Runoff=0.06 cfs 0.035 af

Subcatchment E12: TO DP12 Runoff Area=1,284,712 sf 0.00% Impervious Runoff Depth=0.23"
Flow Length=1,458' Tc=36.2 min CN=43 Runoff=1.18 cfs 0.556 af

Subcatchment E13: TO DP13 Runoff Area=309,709 sf 0.00% Impervious Runoff Depth=0.59"
Flow Length=401' Tc=15.8 min CN=52 Runoff=2.24 cfs 0.351 af

Subcatchment E14: TO DP14 Runoff Area=124,074 sf 0.00% Impervious Runoff Depth=0.46"
Flow Length=608' Tc=20.4 min CN=49 Runoff=0.54 cfs 0.108 af

Subcatchment E15: TO DP15 Runoff Area=42,393 sf 15.50% Impervious Runoff Depth=1.40"
Flow Length=187' Tc=7.9 min CN=66 Runoff=1.38 cfs 0.113 af

Subcatchment E16: TO DP16 Runoff Area=86,344 sf 6.47% Impervious Runoff Depth=1.02"
Flow Length=642' Tc=12.1 min CN=60 Runoff=1.62 cfs 0.168 af

Subcatchment E2: TO DP#2 Runoff Area=1,642,074 sf 0.65% Impervious Runoff Depth=0.11"
Flow Length=2,664' Tc=74.2 min CN=39 Runoff=0.54 cfs 0.347 af

Subcatchment E3: TO DP#3 Runoff Area=126,402 sf 2.47% Impervious Runoff Depth=0.02"
Flow Length=397' Slope=0.0450 '/' Tc=17.8 min CN=34 Runoff=0.01 cfs 0.005 af

Reach 2R: WOODS Avg. Flow Depth=0.01' Max Vel=0.02 fps Inflow=0.06 cfs 0.035 af
n=0.400 L=1,143.0' S=0.0210 '/' Capacity=34.20 cfs Outflow=0.00 cfs 0.000 af

Reach 3R: WOODS Avg. Flow Depth=0.01' Max Vel=0.04 fps Inflow=0.06 cfs 0.035 af
n=0.400 L=75.0' S=0.0800 '/' Capacity=66.76 cfs Outflow=0.06 cfs 0.035 af

Reach DP1: DP#1 Inflow=2.55 cfs 0.667 af
Outflow=2.55 cfs 0.667 af

Reach DP12: DP12 Inflow=1.18 cfs 0.556 af
Outflow=1.18 cfs 0.556 af

Reach DP13: DP13 Inflow=2.24 cfs 0.351 af
Outflow=2.24 cfs 0.351 af

Reach DP14: DP4 Inflow=0.54 cfs 0.108 af
Outflow=0.54 cfs 0.108 af

Reach DP15: DP15 Inflow=1.38 cfs 0.113 af
Outflow=1.38 cfs 0.113 af

Reach DP16: DP16 Inflow=1.62 cfs 0.168 af
Outflow=1.62 cfs 0.168 af

Reach DP2: DP#2 Inflow=0.54 cfs 0.347 af
Outflow=0.54 cfs 0.347 af

Reach DP3: DP#3 Inflow=0.01 cfs 0.005 af
Outflow=0.01 cfs 0.005 af

Reach WETLAND: . Inflow=0.06 cfs 0.035 af
Outflow=0.06 cfs 0.035 af

Total Runoff Area = 131.911 ac Runoff Volume = 2.351 af Average Runoff Depth = 0.21"
99.54% Pervious = 131.307 ac 0.46% Impervious = 0.604 ac

Summary for Subcatchment E1: TO DP#1

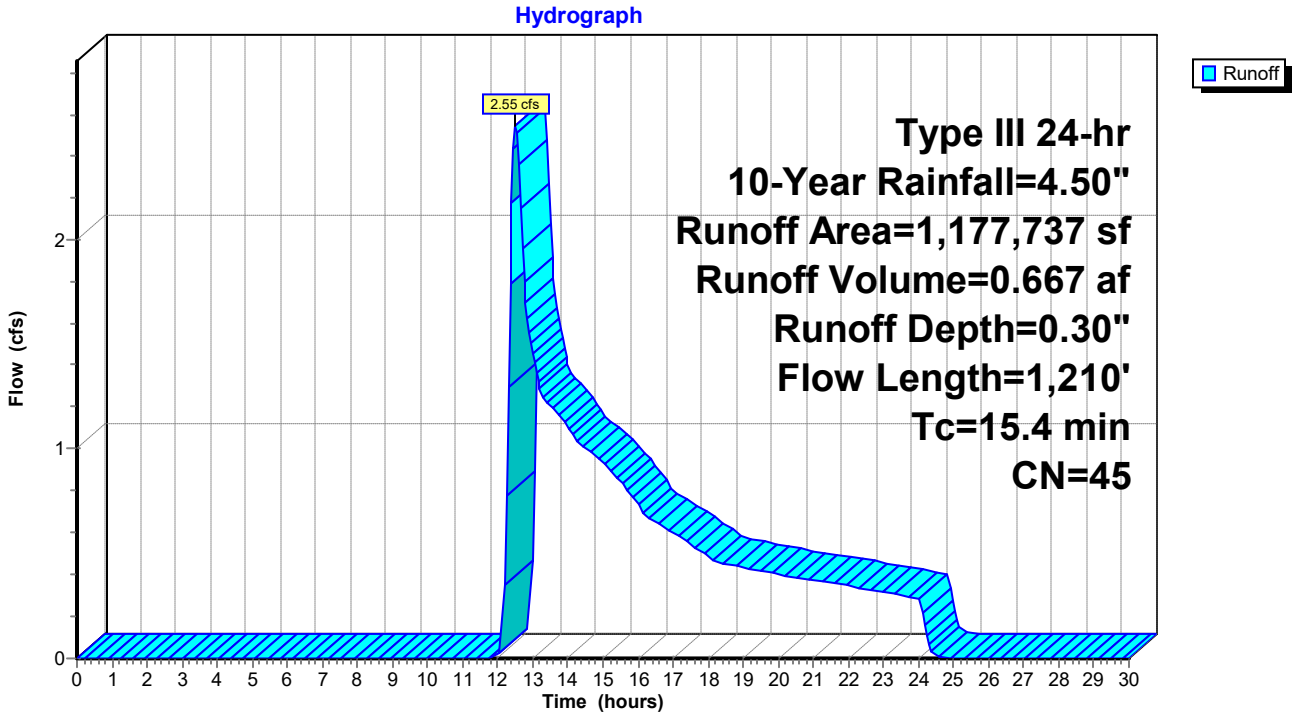
Runoff = 2.55 cfs @ 12.51 hrs, Volume= 0.667 af, Depth= 0.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.50"

Area (sf)	CN	Description
151,677	30	Brush, Good, HSG A
588,429	30	Woods, Good, HSG A
176,386	65	Brush, Good, HSG C
118,566	70	Woods, Good, HSG C
3,044	76	Gravel roads, HSG A
125,807	77	Woods, Good, HSG D
8,101	61	>75% Grass cover, Good, HSG B
5,424	55	Woods, Good, HSG B
303	98	Paved parking, HSG B
1,177,737	45	Weighted Average
1,177,434		99.97% Pervious Area
303		0.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.7	75	0.0760	0.27		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.2	56	0.0760	4.44		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.0	283	0.0860	4.72		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
5.9	592	0.1100	1.66		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.6	204	0.0350	0.94		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.4	1,210	Total			

Subcatchment E1: TO DP#1



Summary for Subcatchment E11: TO 1P

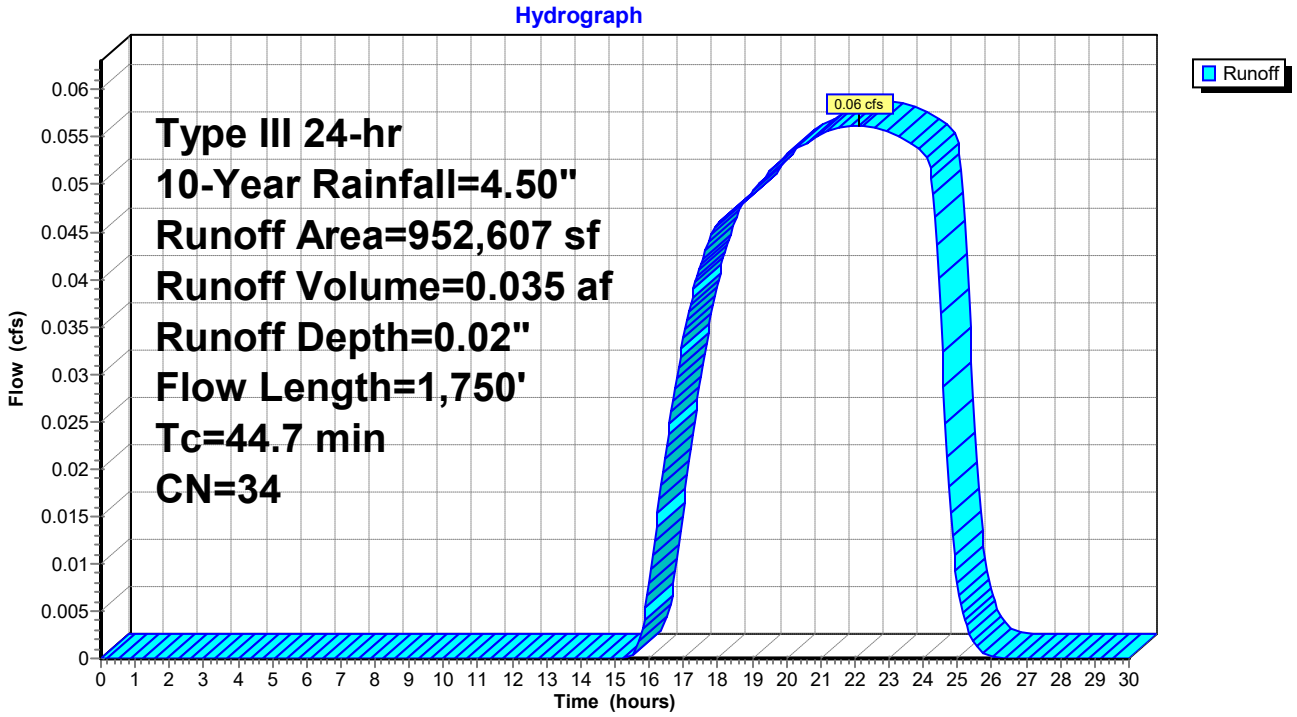
Runoff = 0.06 cfs @ 22.10 hrs, Volume= 0.035 af, Depth= 0.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.50"

Area (sf)	CN	Description
48,242	39	>75% Grass cover, Good, HSG A
806,992	30	Woods, Good, HSG A
3,389	96	Gravel surface, HSG A
30,698	61	>75% Grass cover, Good, HSG B
40,984	55	Woods, Good, HSG B
1,942	96	Gravel surface, HSG B
5,602	74	>75% Grass cover, Good, HSG C
12,838	70	Woods, Good, HSG C
1,920	96	Gravel surface, HSG C
952,607	34	Weighted Average
952,607		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.2	75	0.0410	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
4.5	254	0.0360	0.95		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.5	52	0.1150	1.70		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.7	46	0.0430	1.04		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.0	95	0.1050	1.62		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
11.2	626	0.0350	0.94		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.5	93	0.0310	2.83		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
4.4	258	0.0390	0.99		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
6.7	128	0.0040	0.32		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.8	108	0.0040	1.02		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.2	15	0.0040	1.28		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
44.7	1,750	Total			

Subcatchment E11: TO 1P



Summary for Subcatchment E12: TO DP12

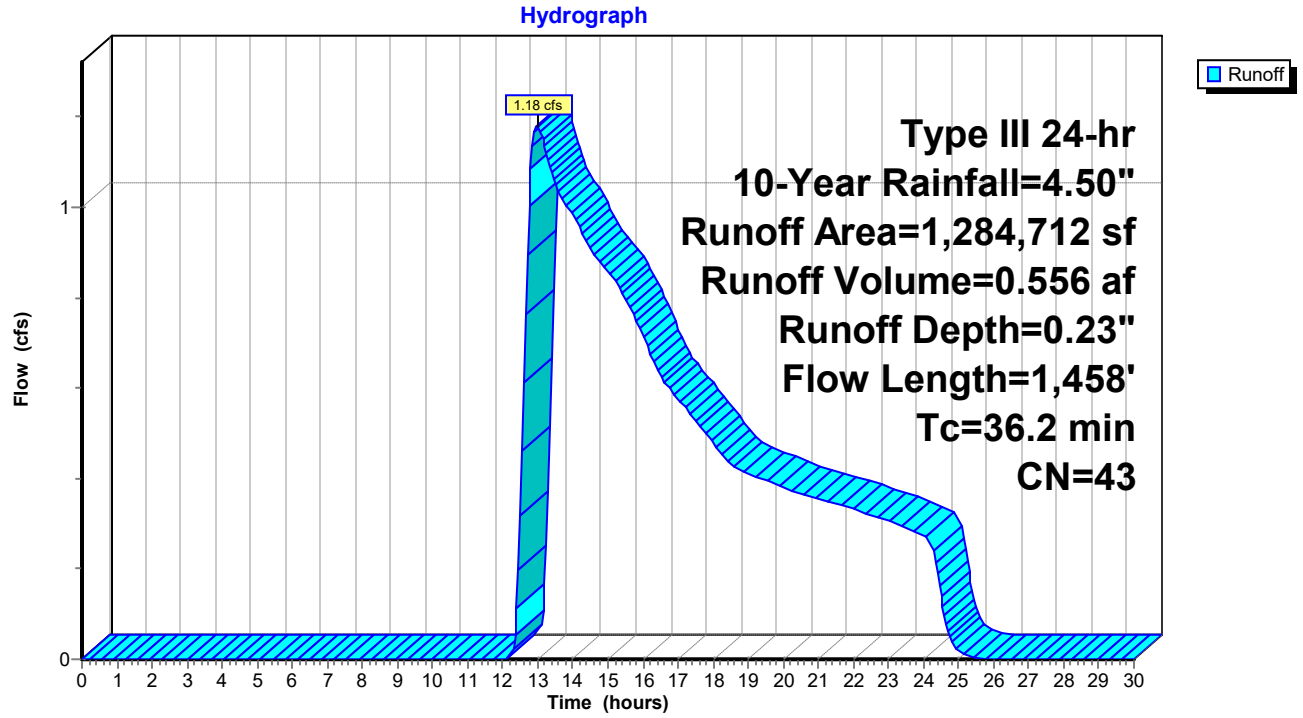
Runoff = 1.18 cfs @ 12.98 hrs, Volume= 0.556 af, Depth= 0.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.50"

Area (sf)	CN	Description
53,655	39	>75% Grass cover, Good, HSG A
607,934	30	Woods, Good, HSG A
127,280	61	>75% Grass cover, Good, HSG B
495,843	55	Woods, Good, HSG B
1,284,712	43	Weighted Average
1,284,712		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	75	0.0500	0.22		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
1.1	242	0.0500	3.60		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
8.7	601	0.0530	1.15		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
20.8	540	0.0075	0.43		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
36.2	1,458	Total			

Subcatchment E12: TO DP12



Summary for Subcatchment E13: TO DP13

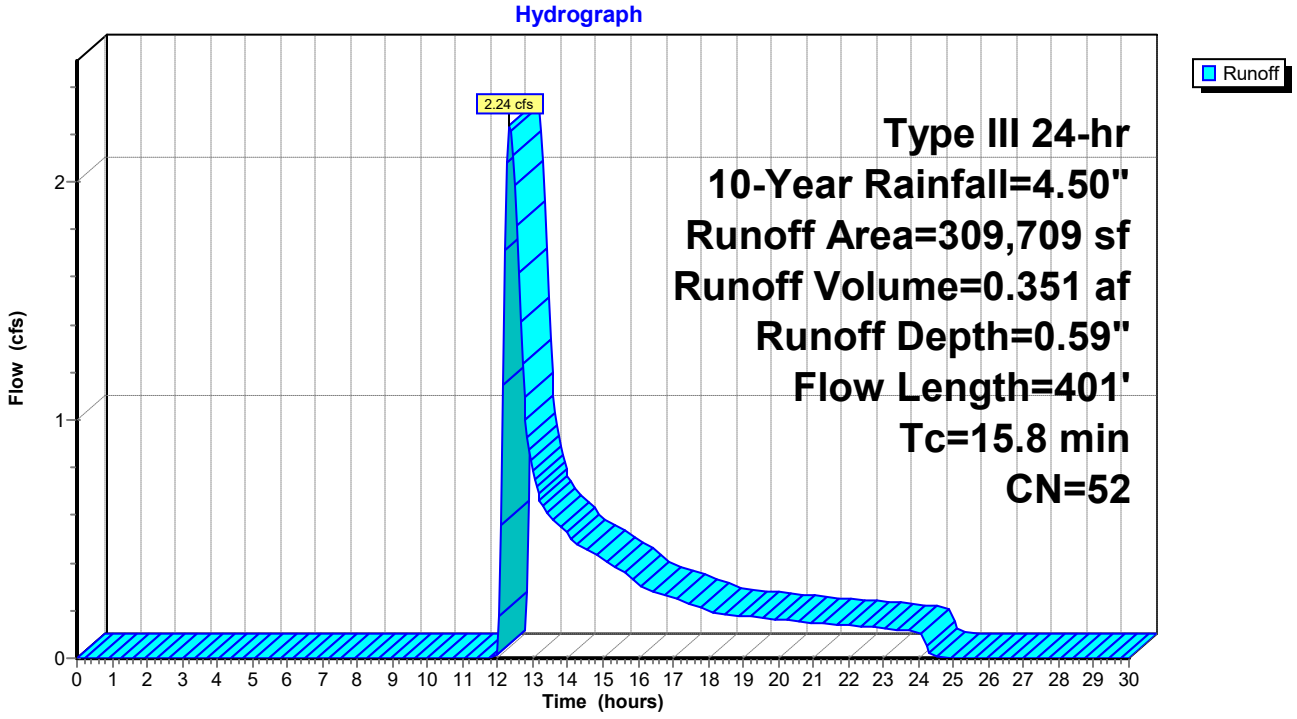
Runoff = 2.24 cfs @ 12.34 hrs, Volume= 0.351 af, Depth= 0.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.50"

Area (sf)	CN	Description
33,614	30	Woods, Good, HSG A
276,095	55	Woods, Good, HSG B
309,709	52	Weighted Average
309,709		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	75	0.0480	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
0.8	51	0.0480	1.10		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.0	90	0.0890	1.49		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.6	185	0.1410	1.88		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.8	401	Total			

Subcatchment E13: TO DP13



Summary for Subcatchment E14: TO DP14

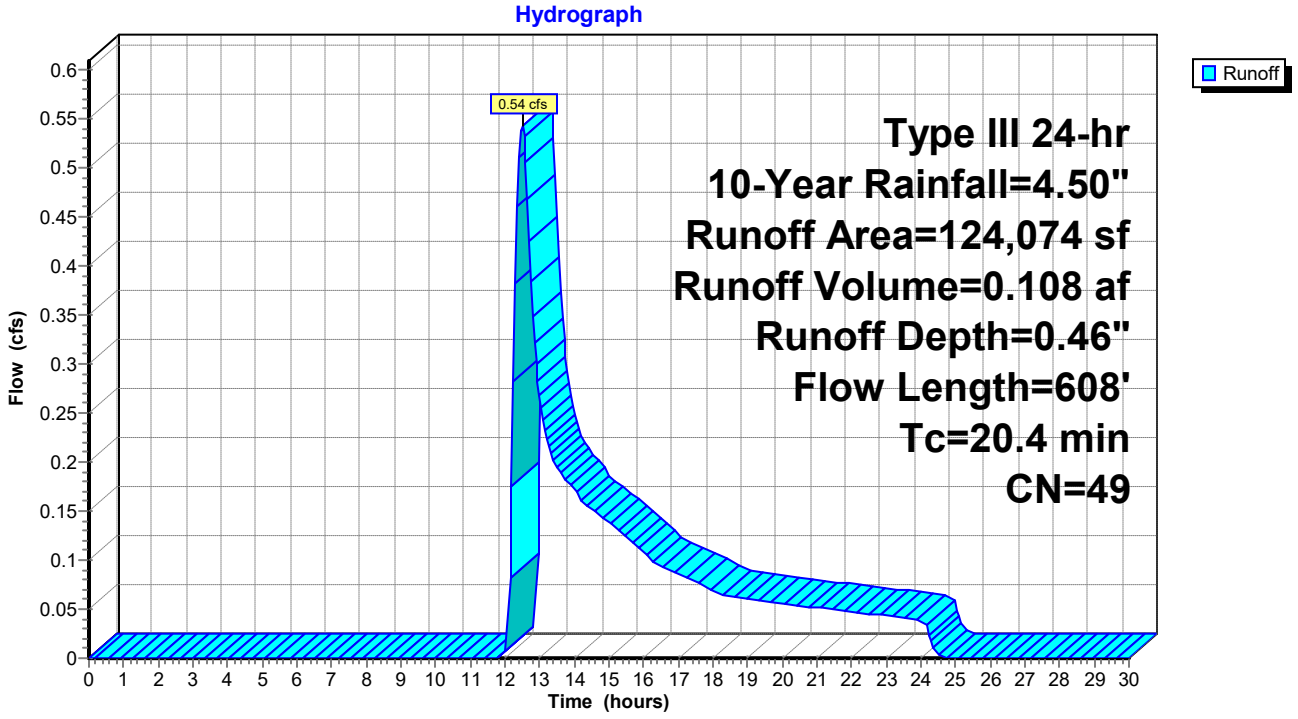
Runoff = 0.54 cfs @ 12.49 hrs, Volume= 0.108 af, Depth= 0.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.50"

Area (sf)	CN	Description
27,356	30	Woods, Good, HSG A
96,718	55	Woods, Good, HSG B
124,074	49	Weighted Average
124,074		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.6	75	0.0380	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
4.1	293	0.0560	1.18		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.0	124	0.1770	2.10		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.7	116	0.0500	1.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
20.4	608	Total			

Subcatchment E14: TO DP14



Summary for Subcatchment E15: TO DP15

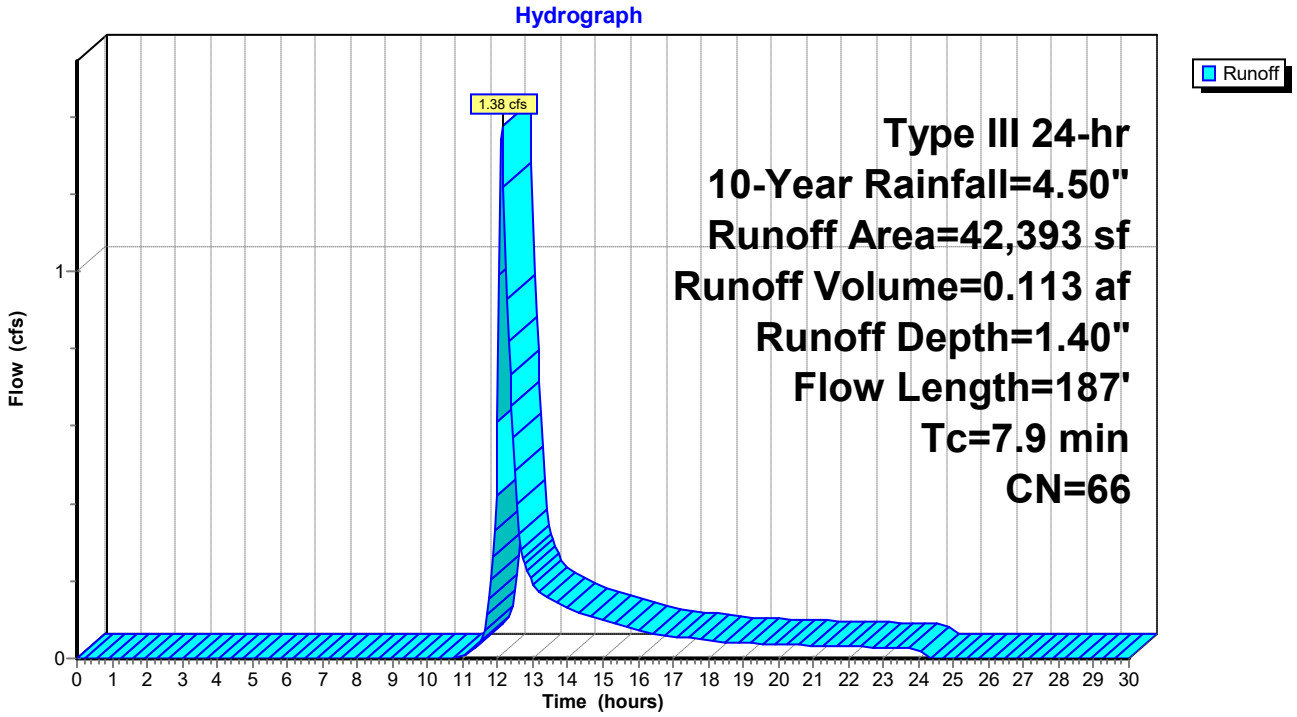
Runoff = 1.38 cfs @ 12.12 hrs, Volume= 0.113 af, Depth= 1.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.50"

Area (sf)	CN	Description
31,968	61	>75% Grass cover, Good, HSG B
3,854	55	Woods, Good, HSG B
6,571	98	Paved parking, HSG B
42,393	66	Weighted Average
35,822		84.50% Pervious Area
6,571		15.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	67	0.0300	0.18		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.8	8	0.0800	0.17		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.2	48	0.0800	4.55		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.2	19	0.0800	1.41		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.5	45	0.1110	1.67		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
7.9	187	Total			

Subcatchment E15: TO DP15



Summary for Subcatchment E16: TO DP16

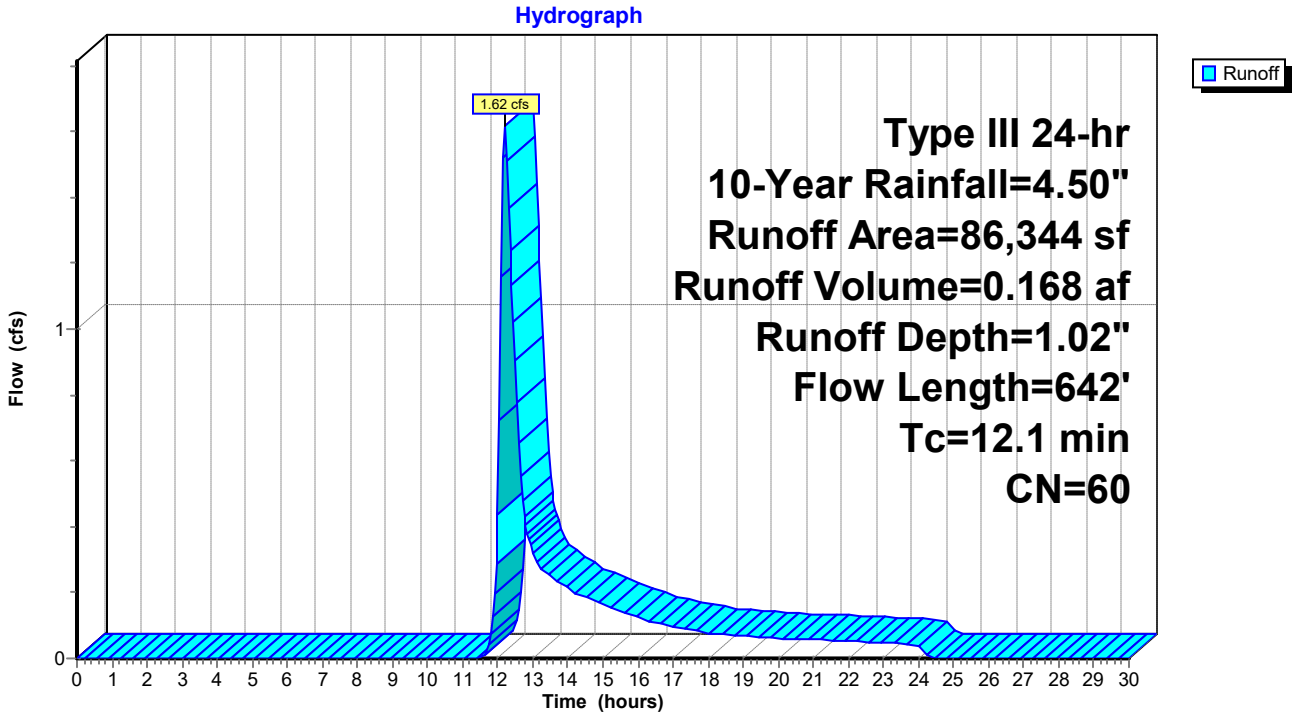
Runoff = 1.62 cfs @ 12.20 hrs, Volume= 0.168 af, Depth= 1.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.50"

Area (sf)	CN	Description
30,763	61	>75% Grass cover, Good, HSG B
49,996	55	Woods, Good, HSG B
5,585	98	Paved parking, HSG B
86,344	60	Weighted Average
80,759		93.53% Pervious Area
5,585		6.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	75	0.0580	0.24		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.0	10	0.0580	3.88		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.4	76	0.0400	3.22		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
2.1	126	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.8	84	0.0240	0.77		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	42	0.0690	4.23		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.3	103	0.0690	1.31		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	56	0.1070	1.64		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	26	0.3080	2.77		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	44	0.0450	4.31		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
12.1	642	Total			

Subcatchment E16: TO DP16



Summary for Subcatchment E2: TO DP#2

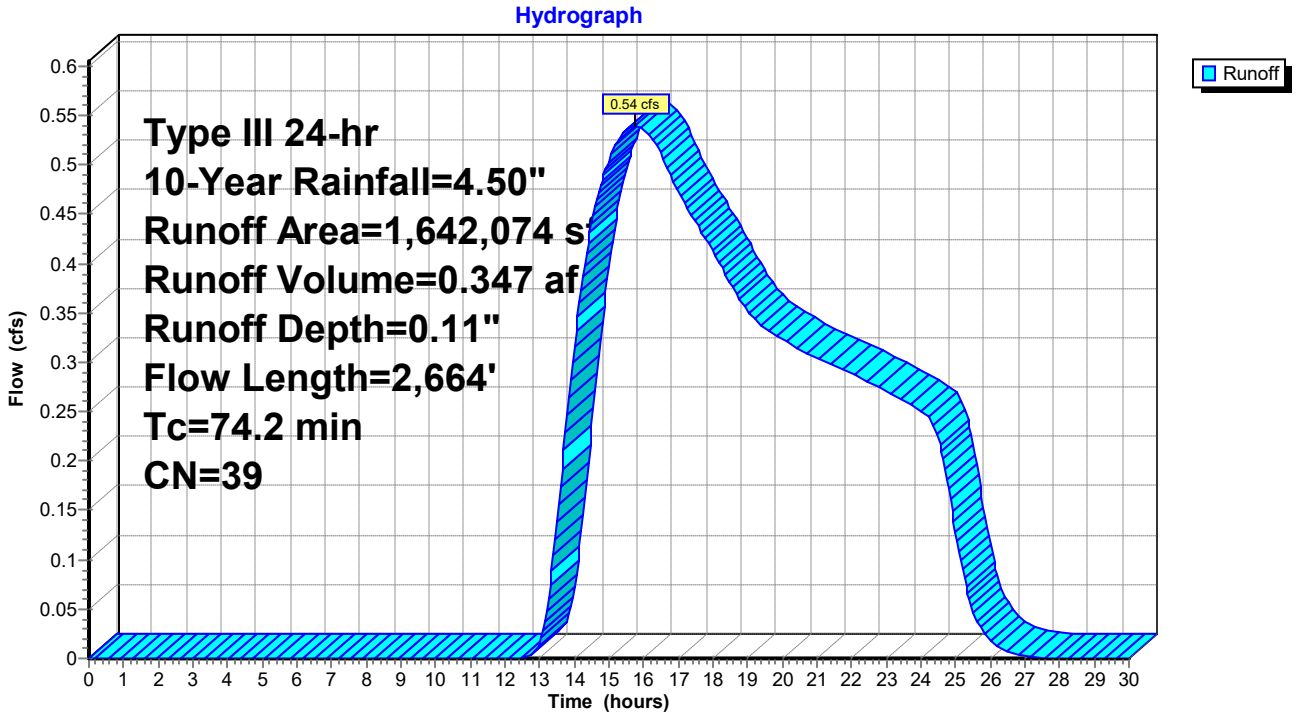
Runoff = 0.54 cfs @ 15.75 hrs, Volume= 0.347 af, Depth= 0.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.50"

Area (sf)	CN	Description
413,595	30	Brush, Good, HSG A
828,219	30	Woods, Good, HSG A
16,467	76	Gravel roads, HSG A
11,726	65	Brush, Good, HSG C
182,165	70	Woods, Good, HSG C
12,185	39	>75% Grass cover, Good, HSG A
290	98	Paved parking, HSG A
93,643	61	>75% Grass cover, Good, HSG B
35,816	55	Woods, Good, HSG B
7,095	98	Paved parking, HSG B
7,500	74	>75% Grass cover, Good, HSG C
30,041	70	Woods, Good, HSG C
3,332	98	Paved parking, HSG C
1,642,074	39	Weighted Average
1,631,357		99.35% Pervious Area
10,717		0.65% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.7	75	0.0750	0.26		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.2	52	0.0750	4.41		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.6	178	0.0900	4.83		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
7.7	463	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
14.5	475	0.0120	0.55		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
29.6	778	0.0077	0.44		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
16.9	643	0.0160	0.63		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
74.2	2,664	Total			

Subcatchment E2: TO DP#2



Summary for Subcatchment E3: TO DP#3

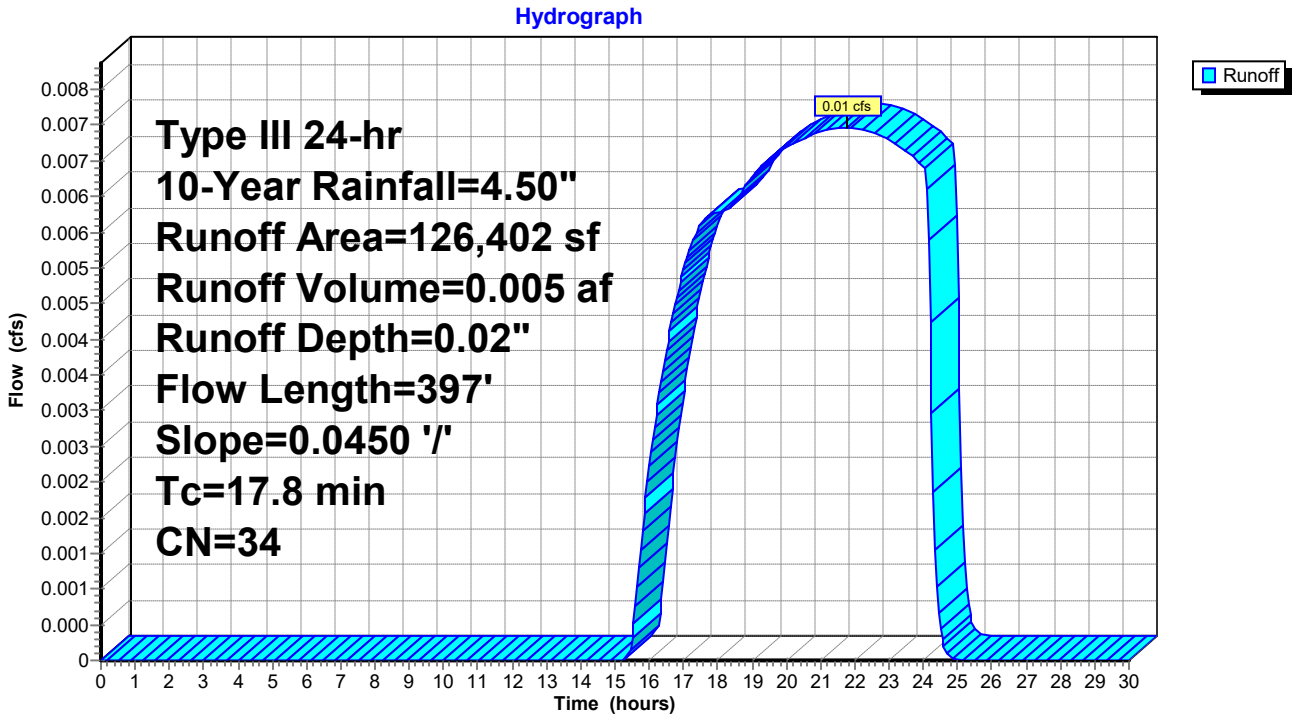
Runoff = 0.01 cfs @ 21.75 hrs, Volume= 0.005 af, Depth= 0.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.50"

Area (sf)	CN	Description
39,374	39	>75% Grass cover, Good, HSG A
83,903	30	Woods, Good, HSG A
3,125	98	Paved parking, HSG A
126,402	34	Weighted Average
123,277		97.53% Pervious Area
3,125		2.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.7	75	0.0450	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
5.1	322	0.0450	1.06		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
17.8	397	Total			

Subcatchment E3: TO DP#3



Summary for Reach 2R: WOODS

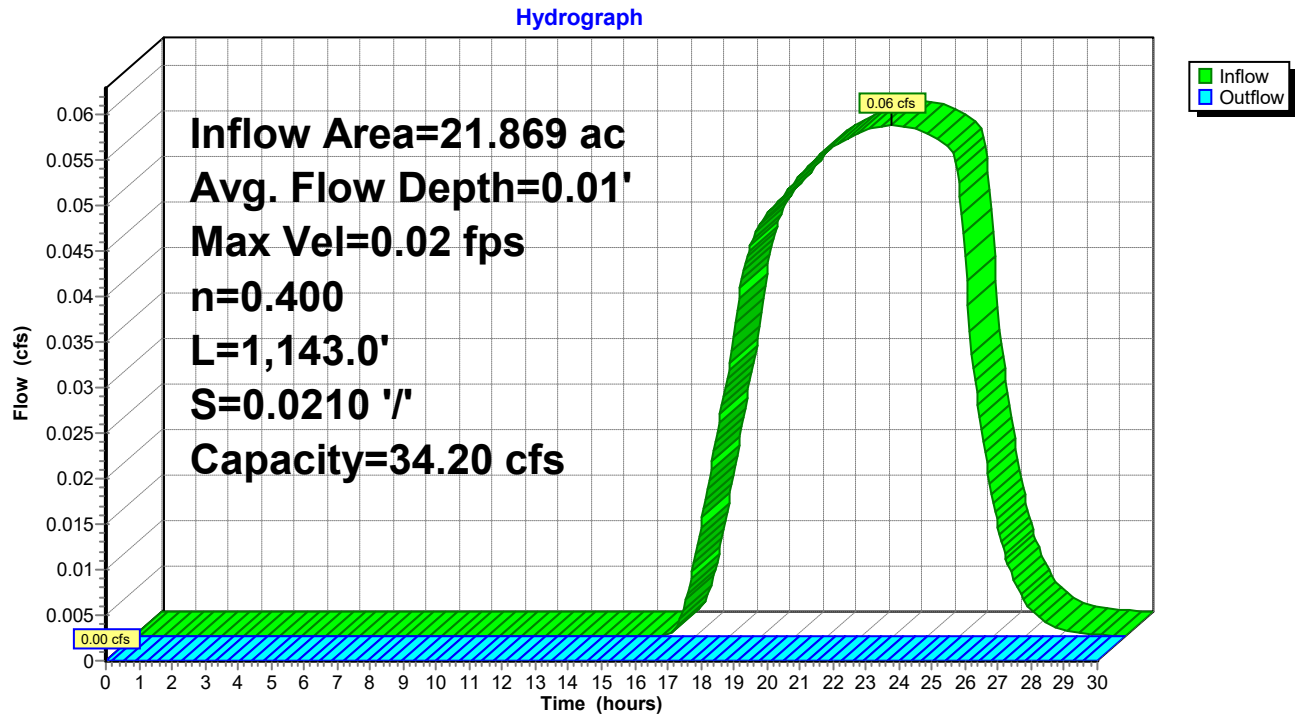
[61] Hint: Exceeded Reach 3R outlet invert by 0.01' @ 25.85 hrs

Inflow Area = 21.869 ac, 0.00% Impervious, Inflow Depth > 0.02" for 10-Year event
Inflow = 0.06 cfs @ 22.93 hrs, Volume= 0.035 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.02 fps, Min. Travel Time= 1,148.6 min
Avg. Velocity = 0.02 fps, Avg. Travel Time= 1,202.6 min

Peak Storage= 1,198 cf @ 25.87 hrs
Average Depth at Peak Storage= 0.01'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 34.20 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 1,143.0' Slope= 0.0210 '/'
Inlet Invert= 862.00', Outlet Invert= 838.00'



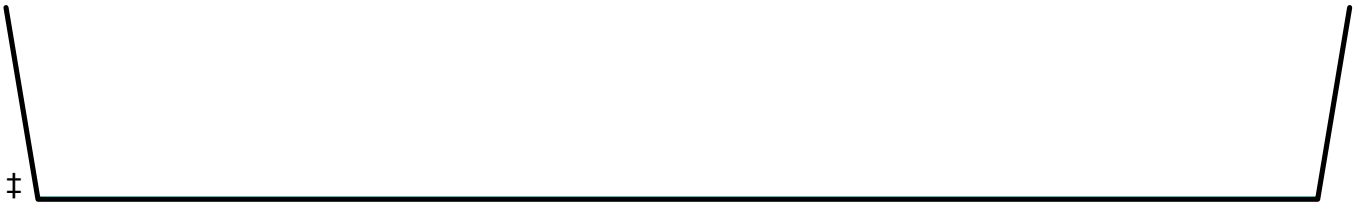
Summary for Reach 3R: WOODS

Inflow Area = 21.869 ac, 0.00% Impervious, Inflow Depth = 0.02" for 10-Year event
Inflow = 0.06 cfs @ 22.10 hrs, Volume= 0.035 af
Outflow = 0.06 cfs @ 22.93 hrs, Volume= 0.035 af, Atten= 0%, Lag= 49.7 min

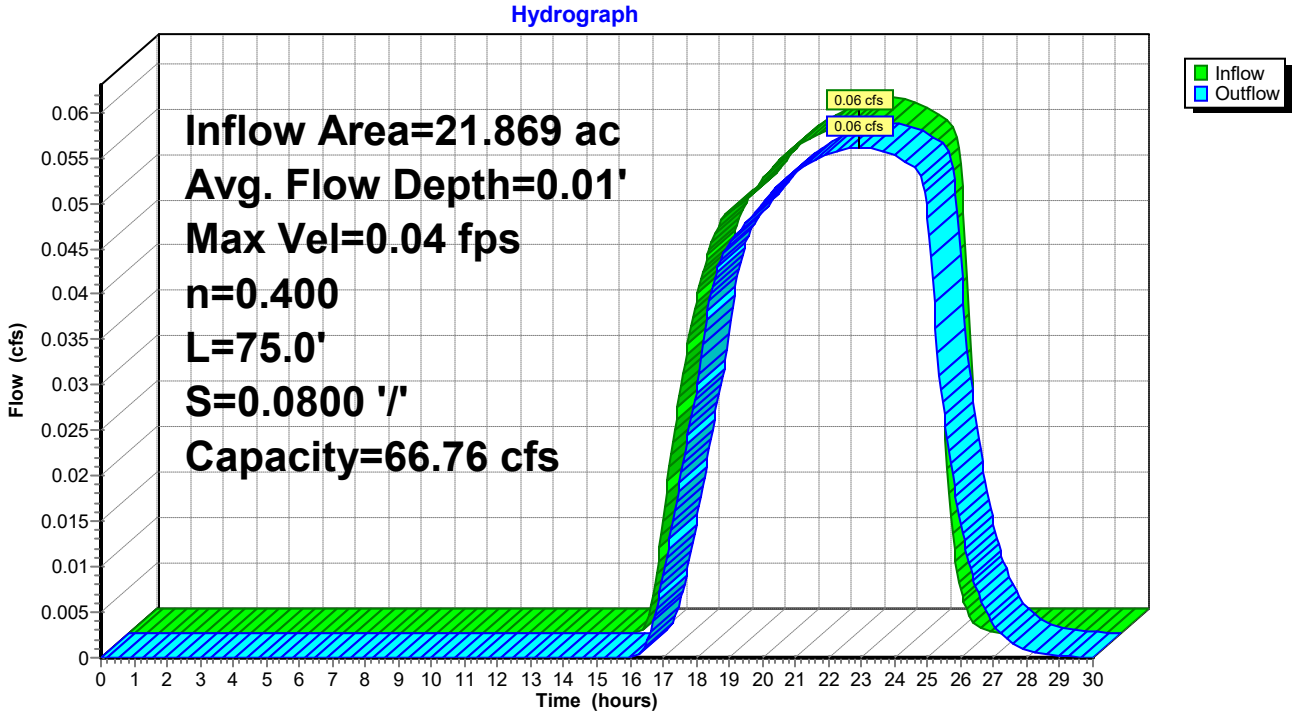
Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.04 fps, Min. Travel Time= 30.7 min
Avg. Velocity = 0.03 fps, Avg. Travel Time= 35.9 min

Peak Storage= 104 cf @ 22.42 hrs
Average Depth at Peak Storage= 0.01'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 66.76 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 75.0' Slope= 0.0800 '/'
Inlet Invert= 868.00', Outlet Invert= 862.00'



Reach 3R: WOODS



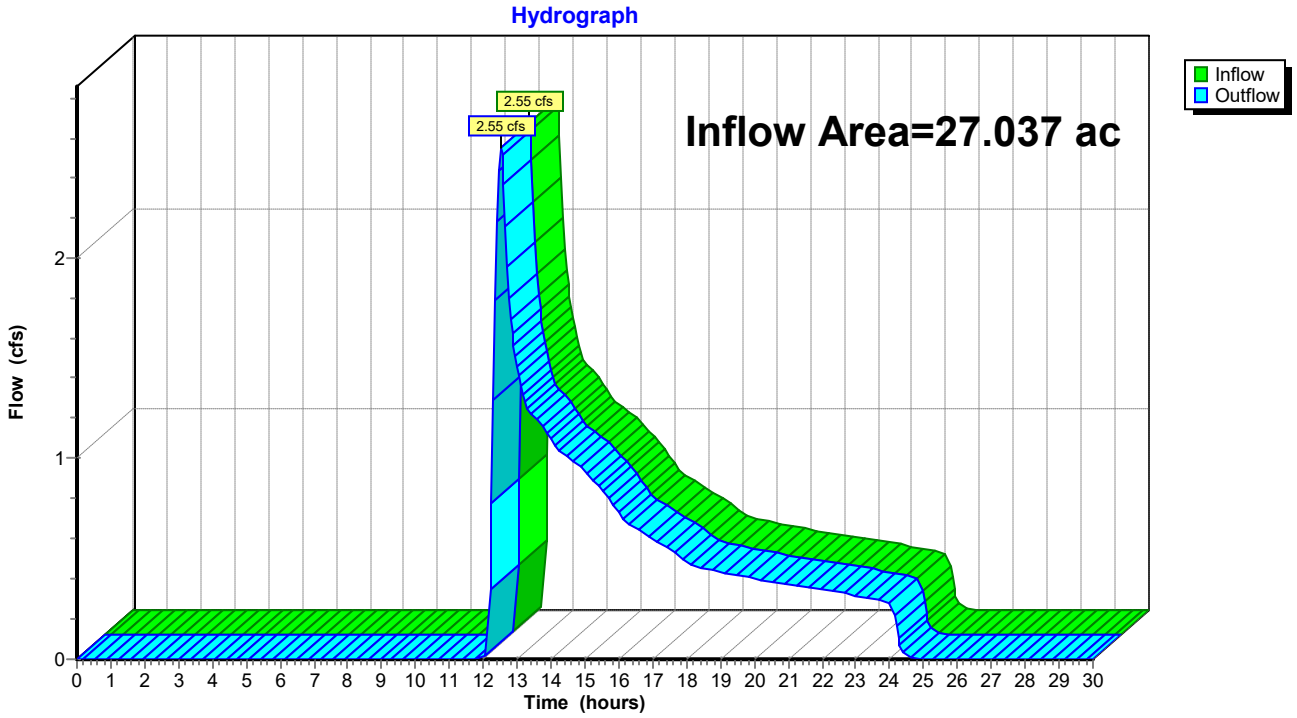
Summary for Reach DP1: DP#1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 27.037 ac, 0.03% Impervious, Inflow Depth = 0.30" for 10-Year event
Inflow = 2.55 cfs @ 12.51 hrs, Volume= 0.667 af
Outflow = 2.55 cfs @ 12.51 hrs, Volume= 0.667 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP1: DP#1



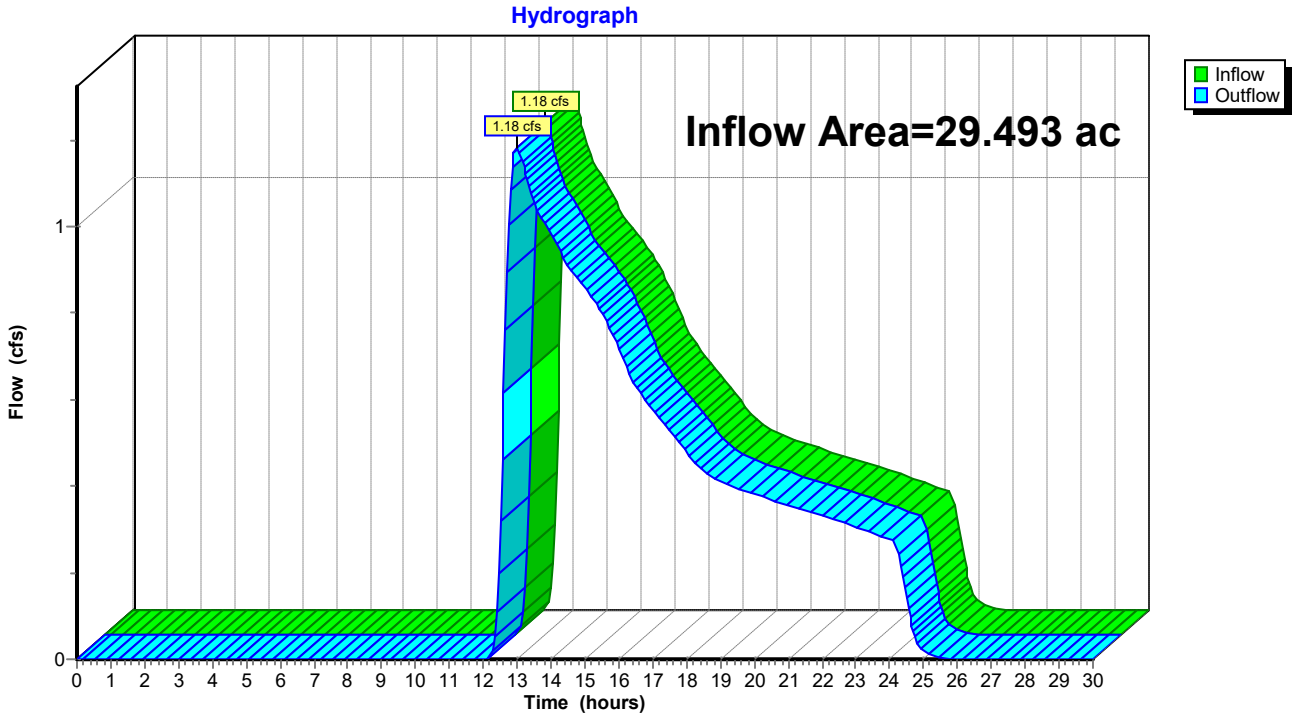
Summary for Reach DP12: DP12

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 29.493 ac, 0.00% Impervious, Inflow Depth = 0.23" for 10-Year event
Inflow = 1.18 cfs @ 12.98 hrs, Volume= 0.556 af
Outflow = 1.18 cfs @ 12.98 hrs, Volume= 0.556 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP12: DP12



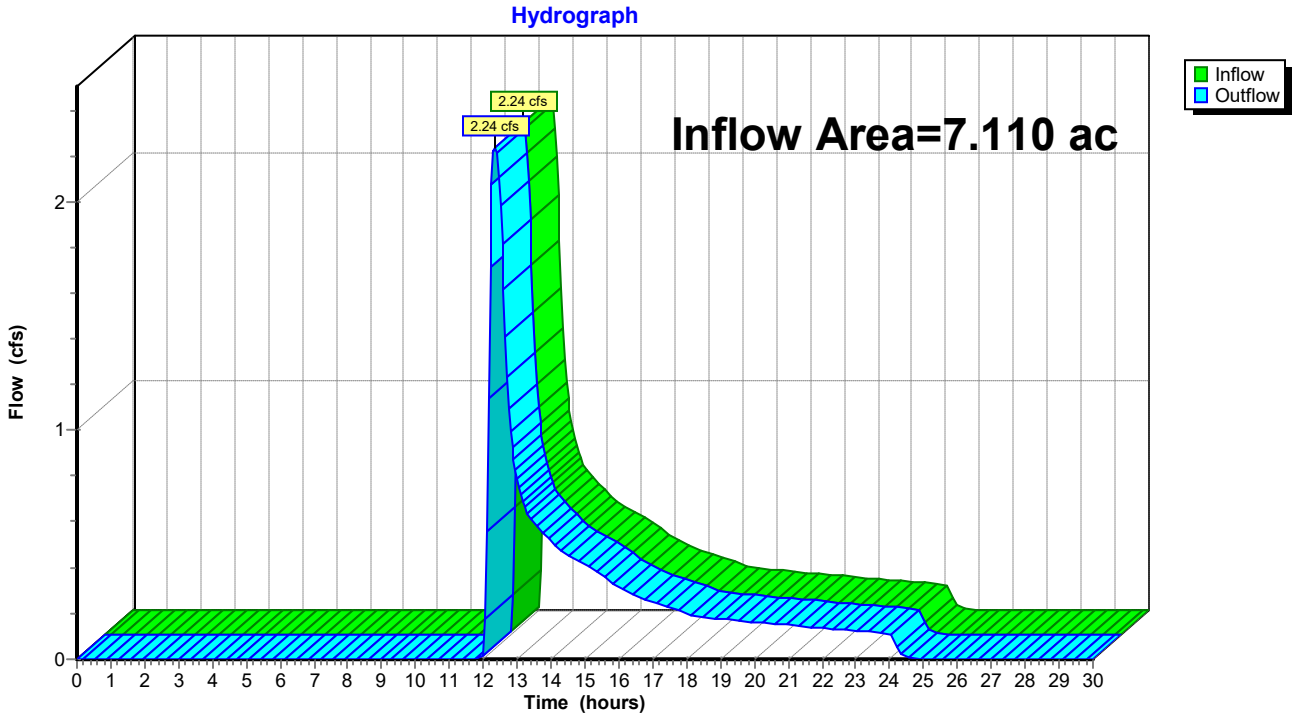
Summary for Reach DP13: DP13

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 7.110 ac, 0.00% Impervious, Inflow Depth = 0.59" for 10-Year event
Inflow = 2.24 cfs @ 12.34 hrs, Volume= 0.351 af
Outflow = 2.24 cfs @ 12.34 hrs, Volume= 0.351 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP13: DP13



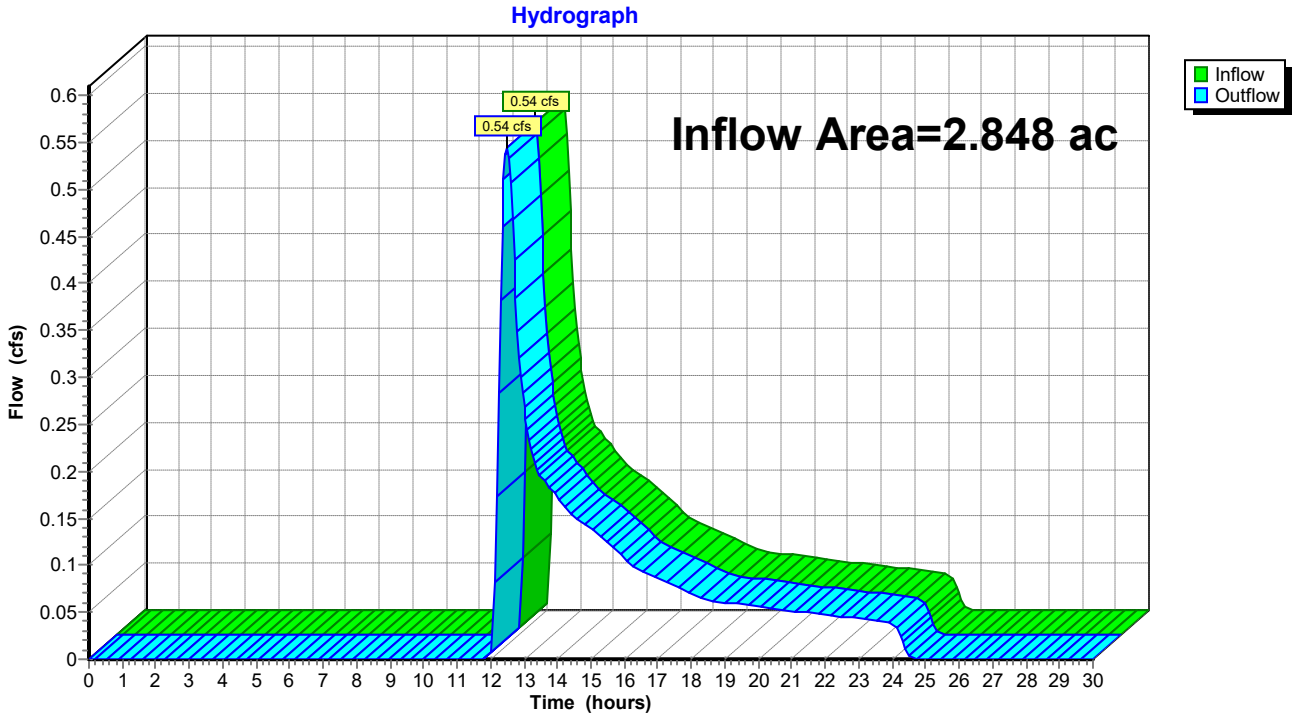
Summary for Reach DP14: DP4

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 2.848 ac, 0.00% Impervious, Inflow Depth = 0.46" for 10-Year event
Inflow = 0.54 cfs @ 12.49 hrs, Volume= 0.108 af
Outflow = 0.54 cfs @ 12.49 hrs, Volume= 0.108 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP14: DP4



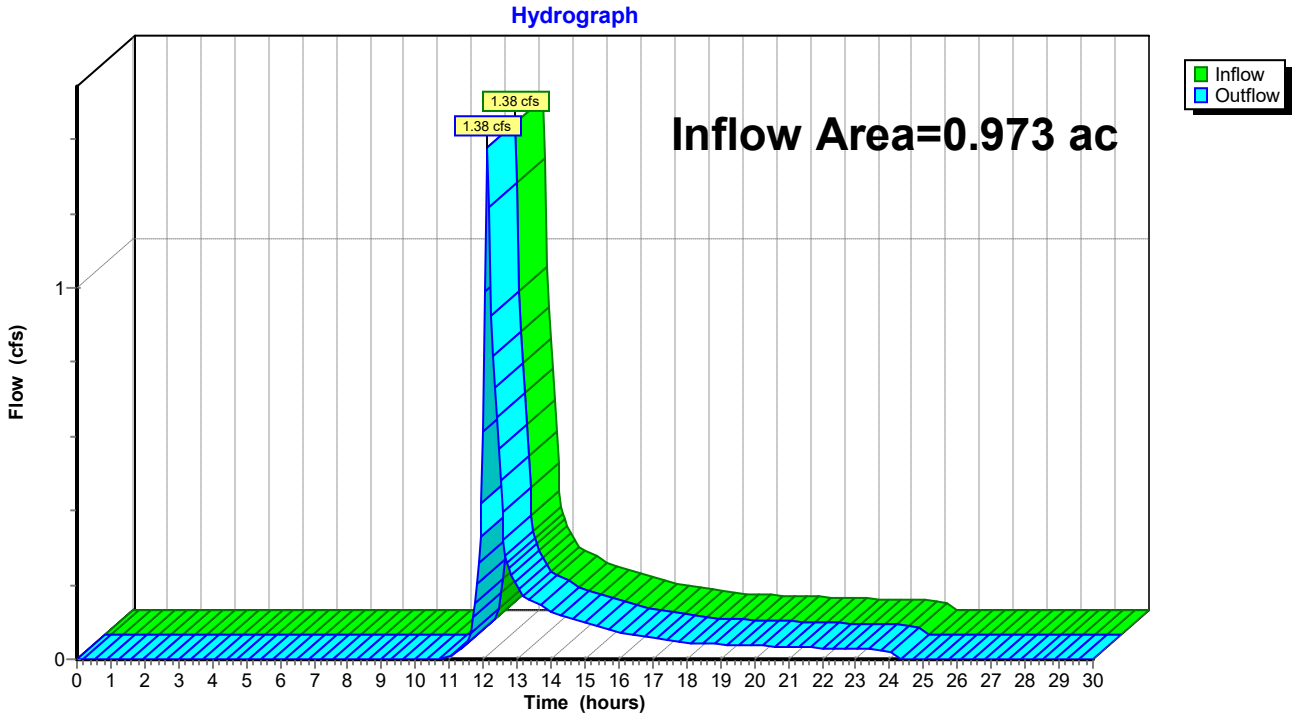
Summary for Reach DP15: DP15

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.973 ac, 15.50% Impervious, Inflow Depth = 1.40" for 10-Year event
Inflow = 1.38 cfs @ 12.12 hrs, Volume= 0.113 af
Outflow = 1.38 cfs @ 12.12 hrs, Volume= 0.113 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP15: DP15



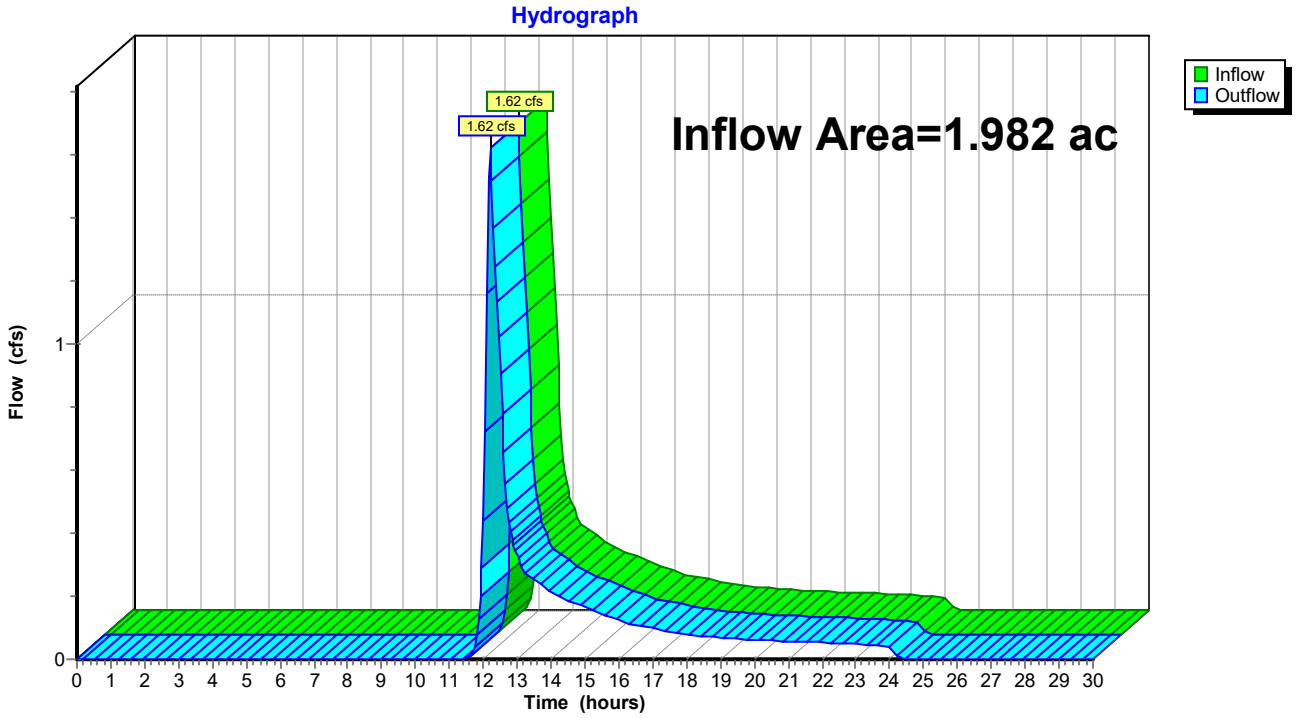
Summary for Reach DP16: DP16

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.982 ac, 6.47% Impervious, Inflow Depth = 1.02" for 10-Year event
Inflow = 1.62 cfs @ 12.20 hrs, Volume= 0.168 af
Outflow = 1.62 cfs @ 12.20 hrs, Volume= 0.168 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP16: DP16



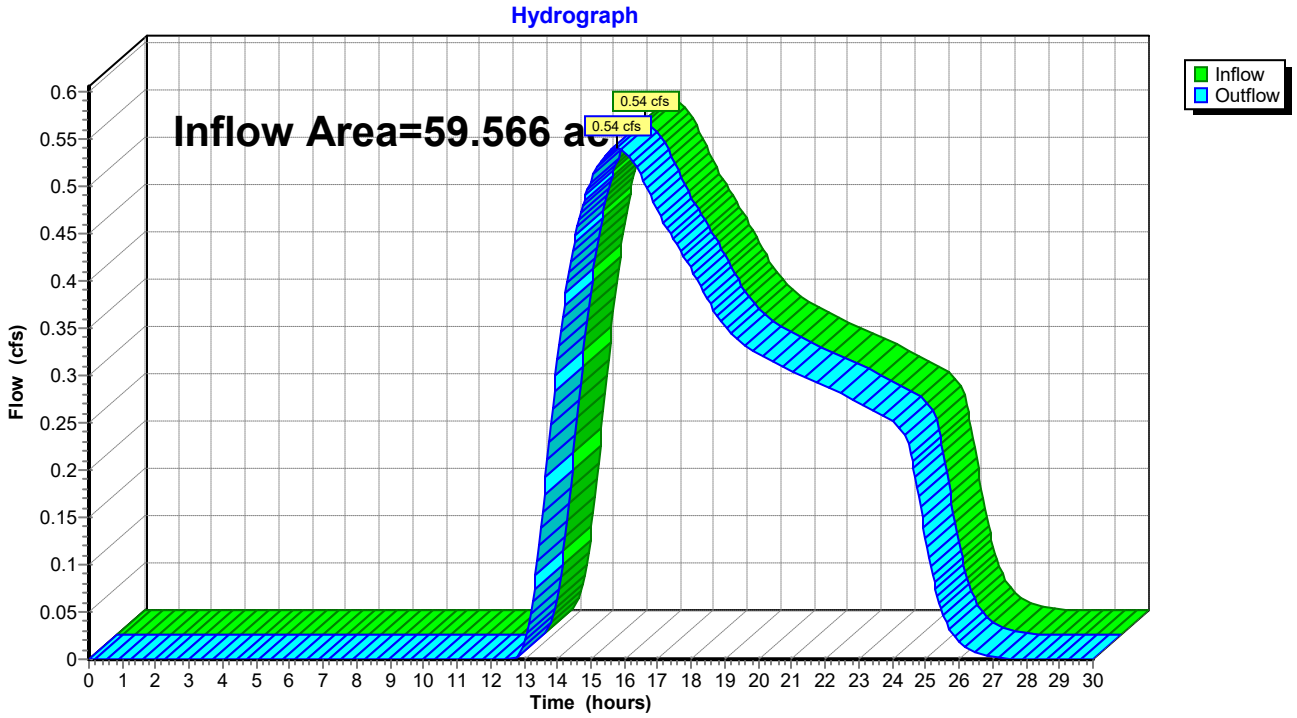
Summary for Reach DP2: DP#2

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 59.566 ac, 0.41% Impervious, Inflow Depth = 0.07" for 10-Year event
Inflow = 0.54 cfs @ 15.75 hrs, Volume= 0.347 af
Outflow = 0.54 cfs @ 15.75 hrs, Volume= 0.347 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP2: DP#2



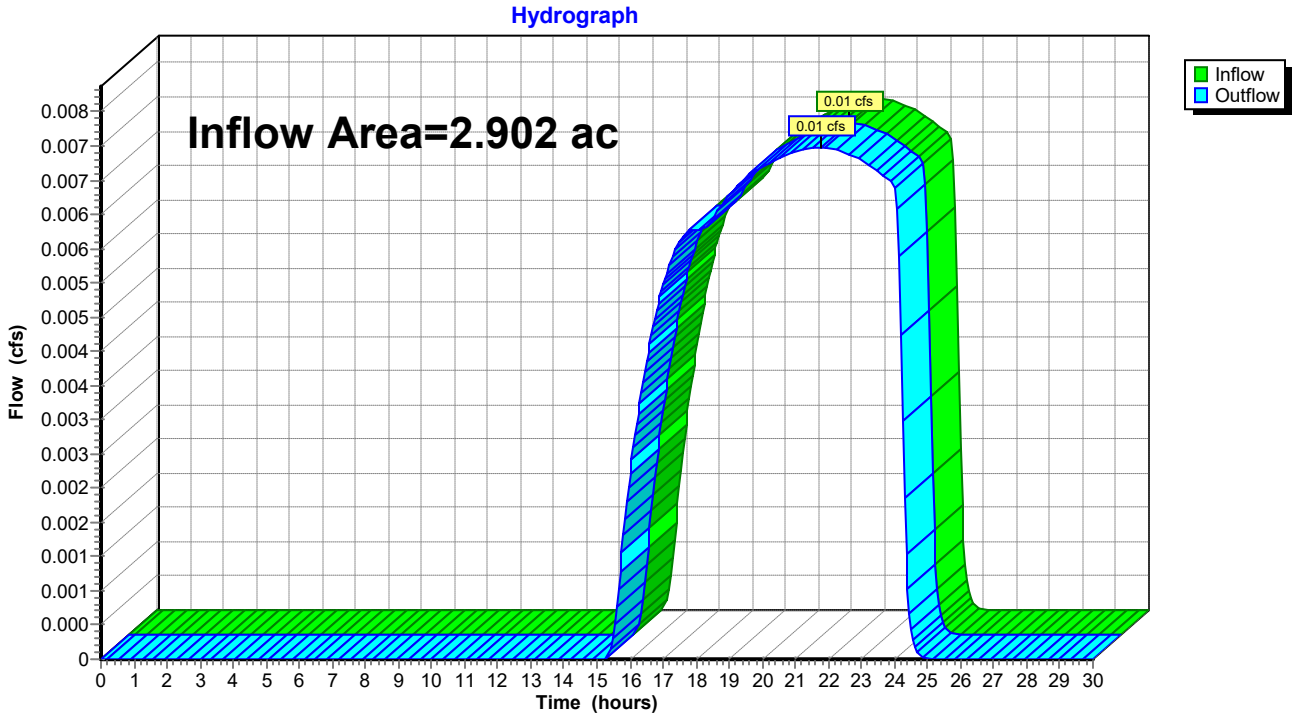
Summary for Reach DP3: DP#3

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 2.902 ac, 2.47% Impervious, Inflow Depth = 0.02" for 10-Year event
Inflow = 0.01 cfs @ 21.75 hrs, Volume= 0.005 af
Outflow = 0.01 cfs @ 21.75 hrs, Volume= 0.005 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP3: DP#3



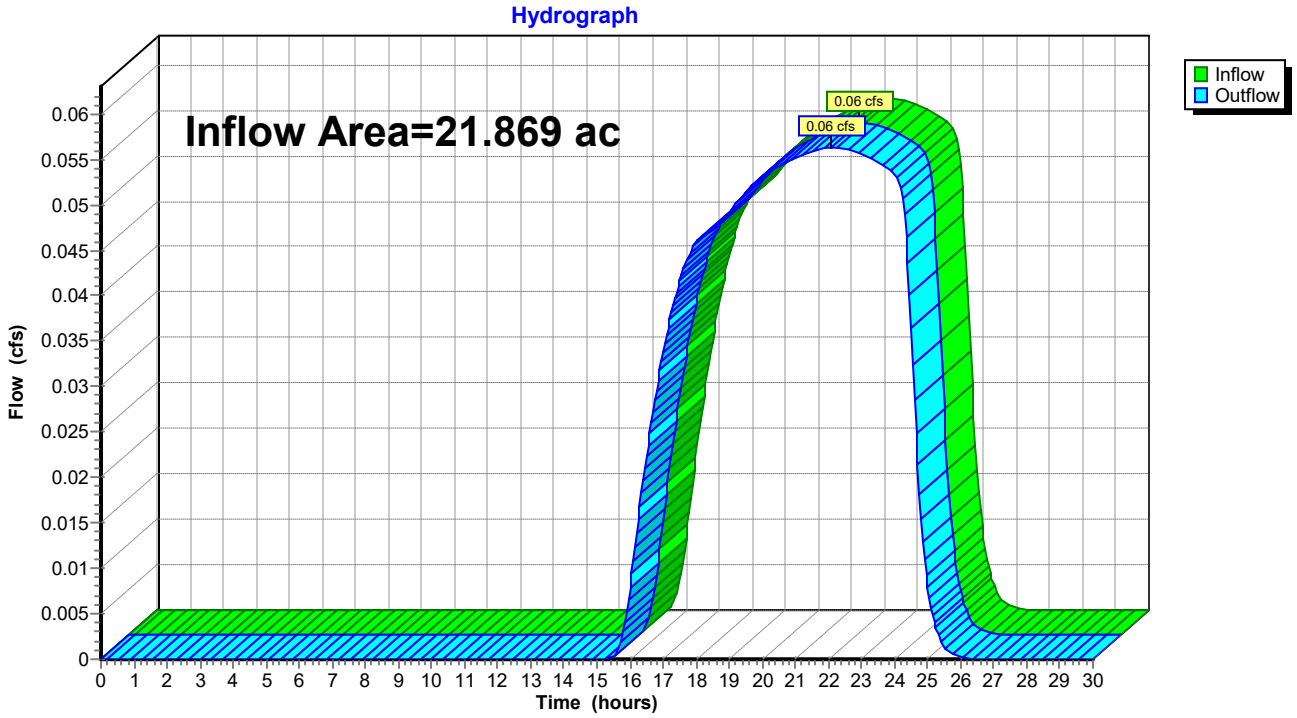
Summary for Reach WETLAND: .

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 21.869 ac, 0.00% Impervious, Inflow Depth = 0.02" for 10-Year event
Inflow = 0.06 cfs @ 22.10 hrs, Volume= 0.035 af
Outflow = 0.06 cfs @ 22.10 hrs, Volume= 0.035 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach WETLAND: .



Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment E1: TO DP#1 Runoff Area=1,177,737 sf 0.03% Impervious Runoff Depth=0.54"
Flow Length=1,210' Tc=15.4 min CN=45 Runoff=6.57 cfs 1.218 af

Subcatchment E11: TO 1P Runoff Area=952,607 sf 0.00% Impervious Runoff Depth=0.10"
Flow Length=1,750' Tc=44.7 min CN=34 Runoff=0.27 cfs 0.176 af

Subcatchment E12: TO DP12 Runoff Area=1,284,712 sf 0.00% Impervious Runoff Depth=0.44"
Flow Length=1,458' Tc=36.2 min CN=43 Runoff=3.79 cfs 1.084 af

Subcatchment E13: TO DP13 Runoff Area=309,709 sf 0.00% Impervious Runoff Depth=0.94"
Flow Length=401' Tc=15.8 min CN=52 Runoff=4.32 cfs 0.557 af

Subcatchment E14: TO DP14 Runoff Area=124,074 sf 0.00% Impervious Runoff Depth=0.76"
Flow Length=608' Tc=20.4 min CN=49 Runoff=1.14 cfs 0.180 af

Subcatchment E15: TO DP15 Runoff Area=42,393 sf 15.50% Impervious Runoff Depth=1.94"
Flow Length=187' Tc=7.9 min CN=66 Runoff=1.97 cfs 0.157 af

Subcatchment E16: TO DP16 Runoff Area=86,344 sf 6.47% Impervious Runoff Depth=1.48"
Flow Length=642' Tc=12.1 min CN=60 Runoff=2.52 cfs 0.244 af

Subcatchment E2: TO DP#2 Runoff Area=1,642,074 sf 0.65% Impervious Runoff Depth=0.26"
Flow Length=2,664' Tc=74.2 min CN=39 Runoff=1.47 cfs 0.832 af

Subcatchment E3: TO DP#3 Runoff Area=126,402 sf 2.47% Impervious Runoff Depth=0.10"
Flow Length=397' Slope=0.0450 '/' Tc=17.8 min CN=34 Runoff=0.04 cfs 0.023 af

Reach 2R: WOODS Avg. Flow Depth=0.02' Max Vel=0.04 fps Inflow=0.27 cfs 0.176 af
n=0.400 L=1,143.0' S=0.0210 '/' Capacity=34.20 cfs Outflow=0.12 cfs 0.039 af

Reach 3R: WOODS Avg. Flow Depth=0.02' Max Vel=0.07 fps Inflow=0.27 cfs 0.176 af
n=0.400 L=75.0' S=0.0800 '/' Capacity=66.76 cfs Outflow=0.27 cfs 0.176 af

Reach DP1: DP#1 Inflow=6.57 cfs 1.218 af
Outflow=6.57 cfs 1.218 af

Reach DP12: DP12 Inflow=3.79 cfs 1.084 af
Outflow=3.79 cfs 1.084 af

Reach DP13: DP13 Inflow=4.32 cfs 0.557 af
Outflow=4.32 cfs 0.557 af

Reach DP14: DP4 Inflow=1.14 cfs 0.180 af
Outflow=1.14 cfs 0.180 af

Reach DP15: DP15 Inflow=1.97 cfs 0.157 af
Outflow=1.97 cfs 0.157 af

Reach DP16: DP16 Inflow=2.52 cfs 0.244 af
Outflow=2.52 cfs 0.244 af

Reach DP2: DP#2 Inflow=1.47 cfs 0.871 af
Outflow=1.47 cfs 0.871 af

Reach DP3: DP#3 Inflow=0.04 cfs 0.023 af
Outflow=0.04 cfs 0.023 af

Reach WETLAND: . Inflow=0.27 cfs 0.176 af
Outflow=0.27 cfs 0.176 af

Total Runoff Area = 131.911 ac Runoff Volume = 4.473 af Average Runoff Depth = 0.41"
99.54% Pervious = 131.307 ac 0.46% Impervious = 0.604 ac

Summary for Subcatchment E1: TO DP#1

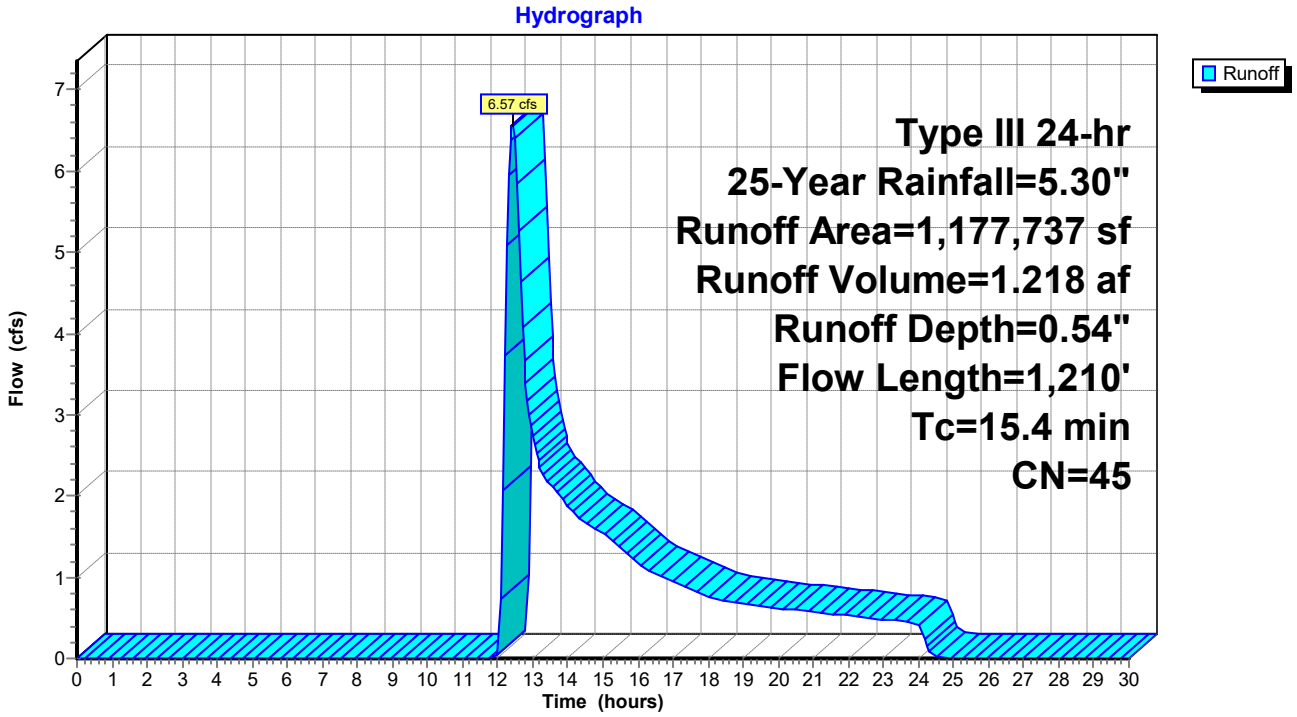
Runoff = 6.57 cfs @ 12.42 hrs, Volume= 1.218 af, Depth= 0.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.30"

Area (sf)	CN	Description
151,677	30	Brush, Good, HSG A
588,429	30	Woods, Good, HSG A
176,386	65	Brush, Good, HSG C
118,566	70	Woods, Good, HSG C
3,044	76	Gravel roads, HSG A
125,807	77	Woods, Good, HSG D
8,101	61	>75% Grass cover, Good, HSG B
5,424	55	Woods, Good, HSG B
303	98	Paved parking, HSG B
1,177,737	45	Weighted Average
1,177,434		99.97% Pervious Area
303		0.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.7	75	0.0760	0.27		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.2	56	0.0760	4.44		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.0	283	0.0860	4.72		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
5.9	592	0.1100	1.66		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.6	204	0.0350	0.94		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.4	1,210	Total			

Subcatchment E1: TO DP#1



Summary for Subcatchment E11: TO 1P

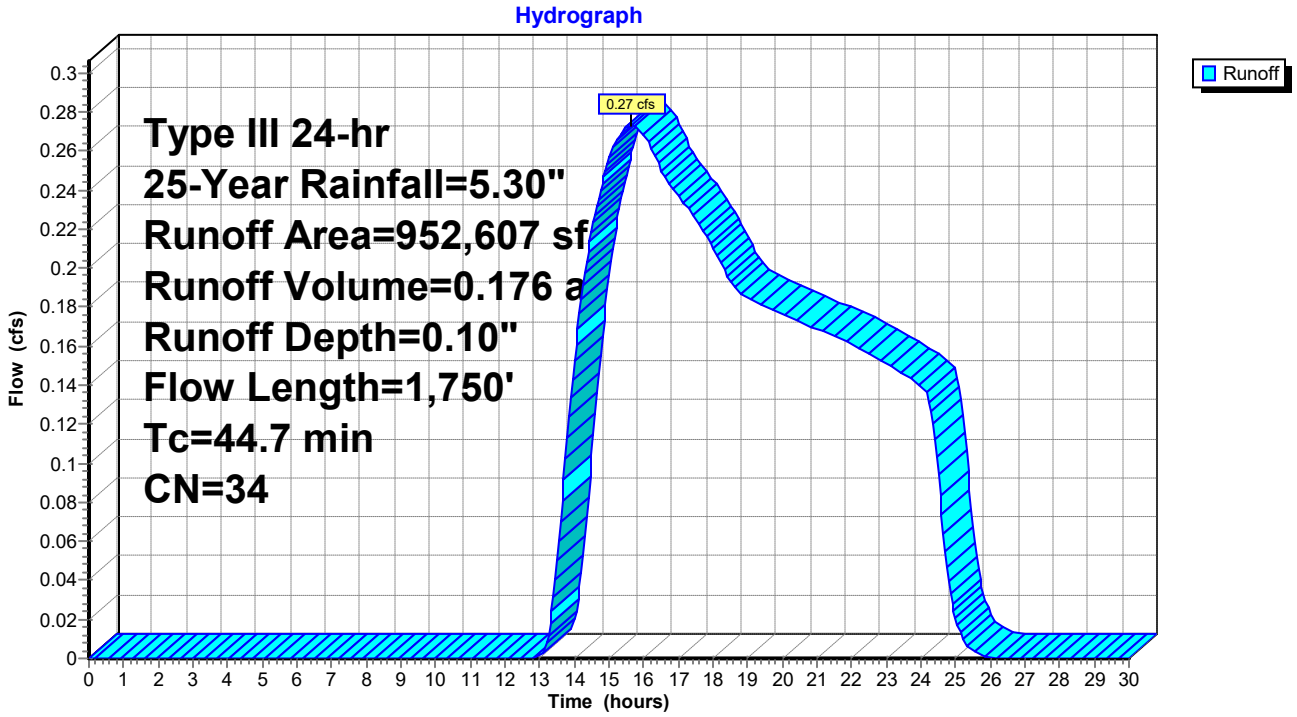
Runoff = 0.27 cfs @ 15.65 hrs, Volume= 0.176 af, Depth= 0.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.30"

Area (sf)	CN	Description
48,242	39	>75% Grass cover, Good, HSG A
806,992	30	Woods, Good, HSG A
3,389	96	Gravel surface, HSG A
30,698	61	>75% Grass cover, Good, HSG B
40,984	55	Woods, Good, HSG B
1,942	96	Gravel surface, HSG B
5,602	74	>75% Grass cover, Good, HSG C
12,838	70	Woods, Good, HSG C
1,920	96	Gravel surface, HSG C
952,607	34	Weighted Average
952,607		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.2	75	0.0410	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
4.5	254	0.0360	0.95		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.5	52	0.1150	1.70		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.7	46	0.0430	1.04		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.0	95	0.1050	1.62		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
11.2	626	0.0350	0.94		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.5	93	0.0310	2.83		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
4.4	258	0.0390	0.99		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
6.7	128	0.0040	0.32		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.8	108	0.0040	1.02		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.2	15	0.0040	1.28		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
44.7	1,750	Total			

Subcatchment E11: TO 1P



Summary for Subcatchment E12: TO DP12

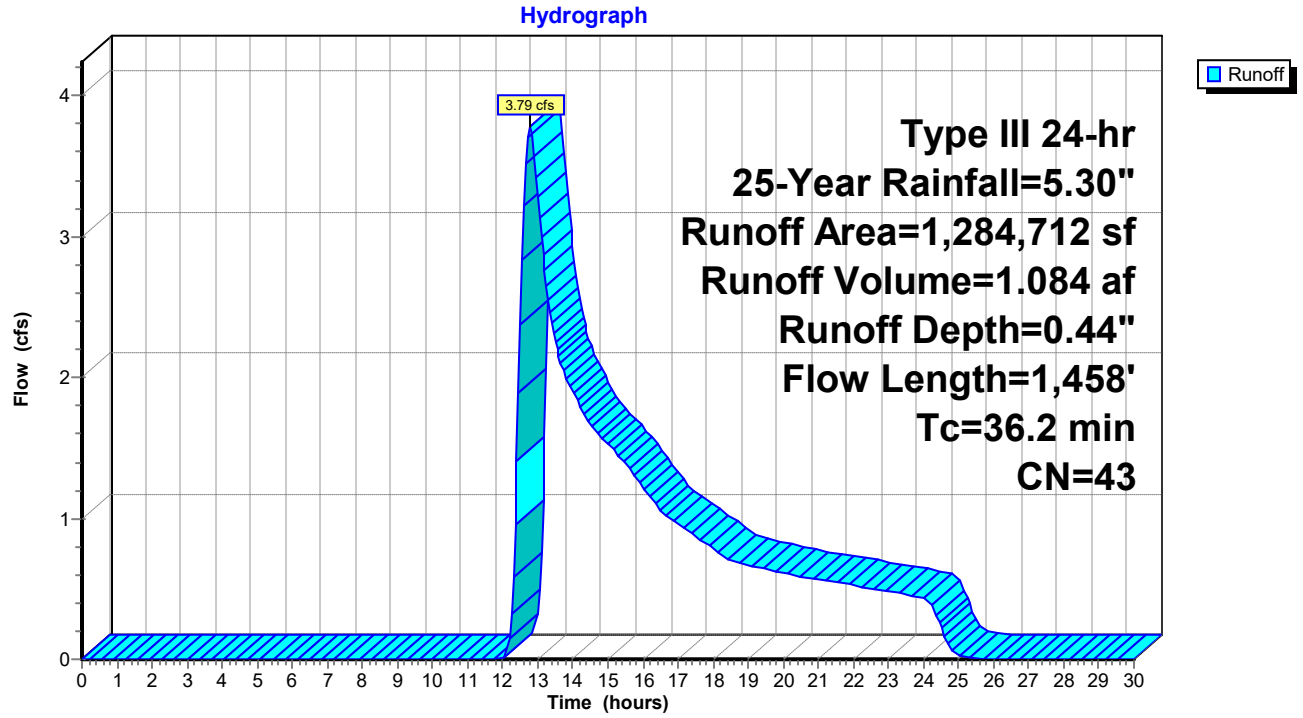
Runoff = 3.79 cfs @ 12.77 hrs, Volume= 1.084 af, Depth= 0.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.30"

Area (sf)	CN	Description
53,655	39	>75% Grass cover, Good, HSG A
607,934	30	Woods, Good, HSG A
127,280	61	>75% Grass cover, Good, HSG B
495,843	55	Woods, Good, HSG B
1,284,712	43	Weighted Average
1,284,712		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	75	0.0500	0.22		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
1.1	242	0.0500	3.60		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
8.7	601	0.0530	1.15		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
20.8	540	0.0075	0.43		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
36.2	1,458	Total			

Subcatchment E12: TO DP12



Summary for Subcatchment E13: TO DP13

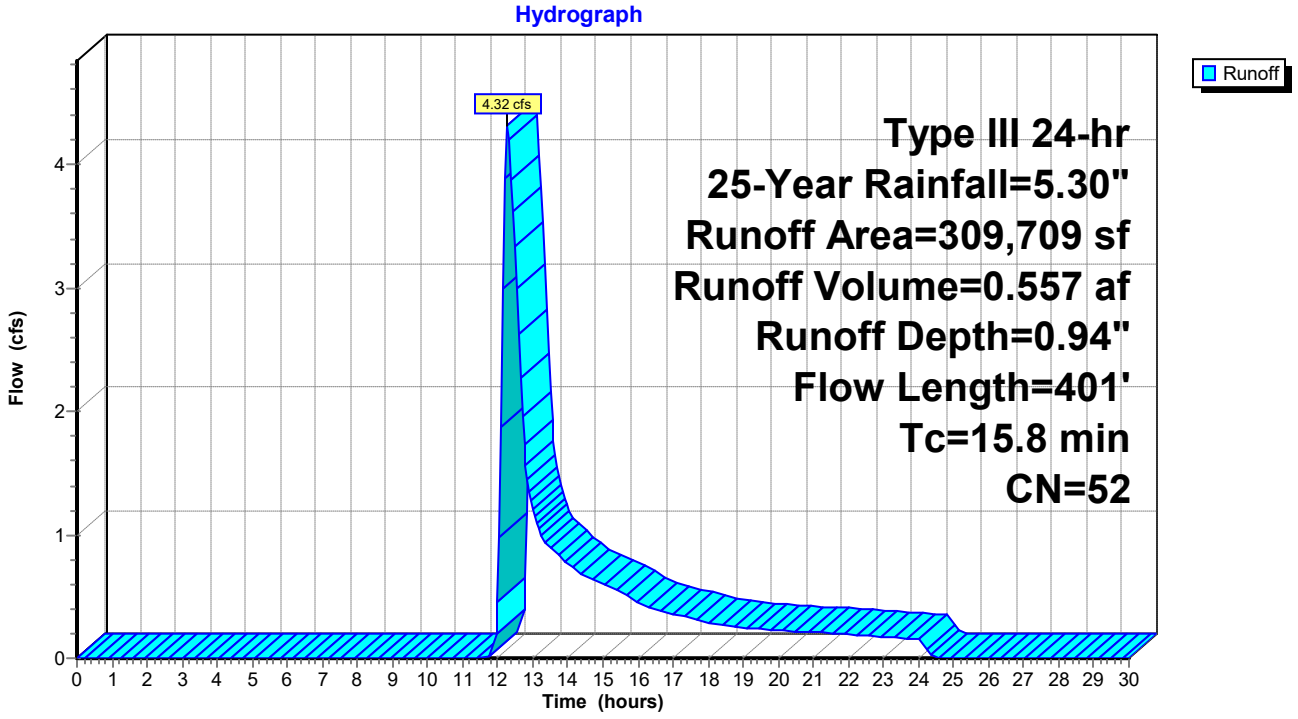
Runoff = 4.32 cfs @ 12.28 hrs, Volume= 0.557 af, Depth= 0.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.30"

Area (sf)	CN	Description
33,614	30	Woods, Good, HSG A
276,095	55	Woods, Good, HSG B
309,709	52	Weighted Average
309,709		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	75	0.0480	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
0.8	51	0.0480	1.10		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.0	90	0.0890	1.49		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.6	185	0.1410	1.88		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.8	401	Total			

Subcatchment E13: TO DP13



Summary for Subcatchment E14: TO DP14

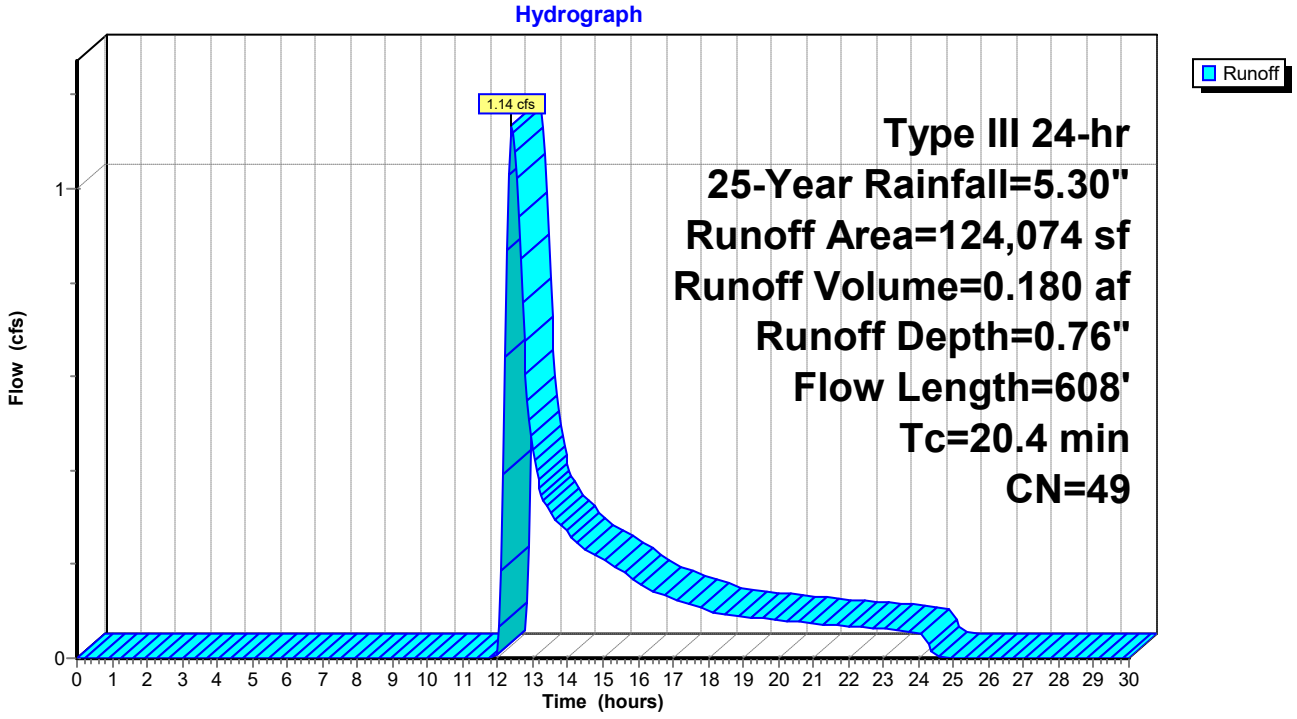
Runoff = 1.14 cfs @ 12.40 hrs, Volume= 0.180 af, Depth= 0.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.30"

Area (sf)	CN	Description
27,356	30	Woods, Good, HSG A
96,718	55	Woods, Good, HSG B
124,074	49	Weighted Average
124,074		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.6	75	0.0380	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
4.1	293	0.0560	1.18		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.0	124	0.1770	2.10		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.7	116	0.0500	1.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
20.4	608	Total			

Subcatchment E14: TO DP14



Summary for Subcatchment E15: TO DP15

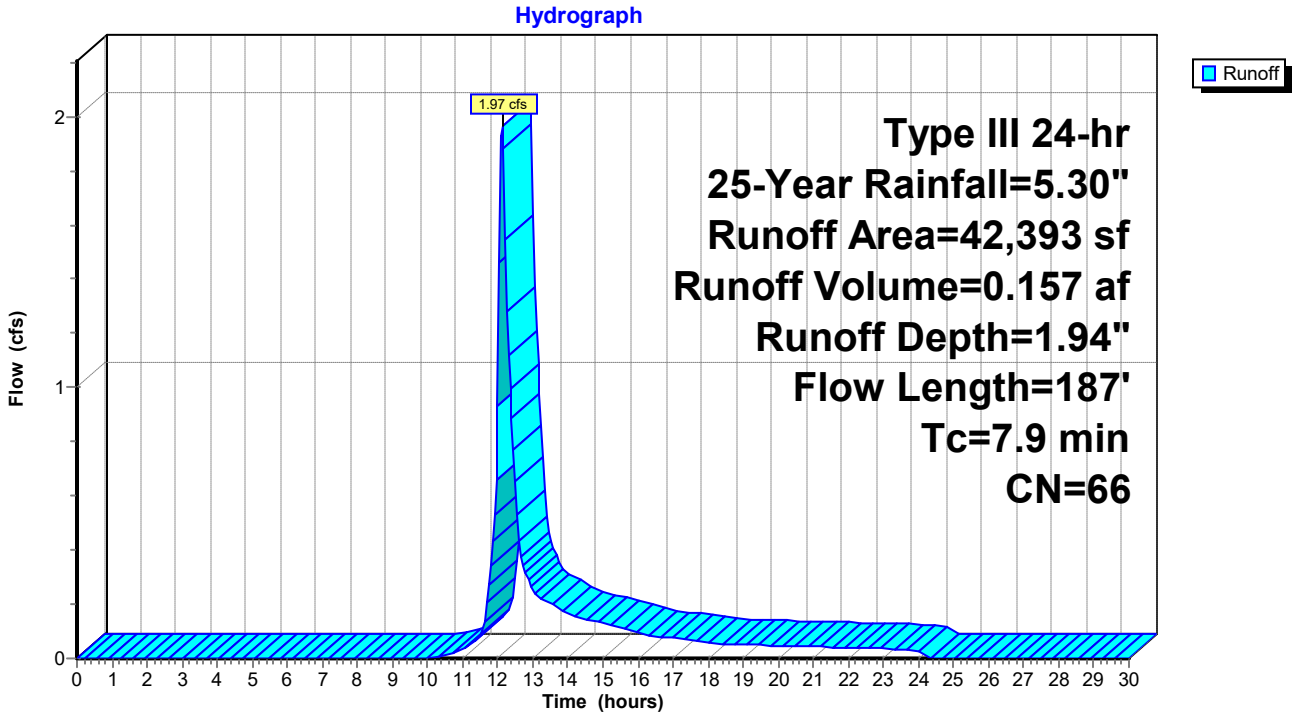
Runoff = 1.97 cfs @ 12.12 hrs, Volume= 0.157 af, Depth= 1.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.30"

Area (sf)	CN	Description
31,968	61	>75% Grass cover, Good, HSG B
3,854	55	Woods, Good, HSG B
6,571	98	Paved parking, HSG B
42,393	66	Weighted Average
35,822		84.50% Pervious Area
6,571		15.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	67	0.0300	0.18		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.8	8	0.0800	0.17		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.2	48	0.0800	4.55		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.2	19	0.0800	1.41		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.5	45	0.1110	1.67		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
7.9	187	Total			

Subcatchment E15: TO DP15



Summary for Subcatchment E16: TO DP16

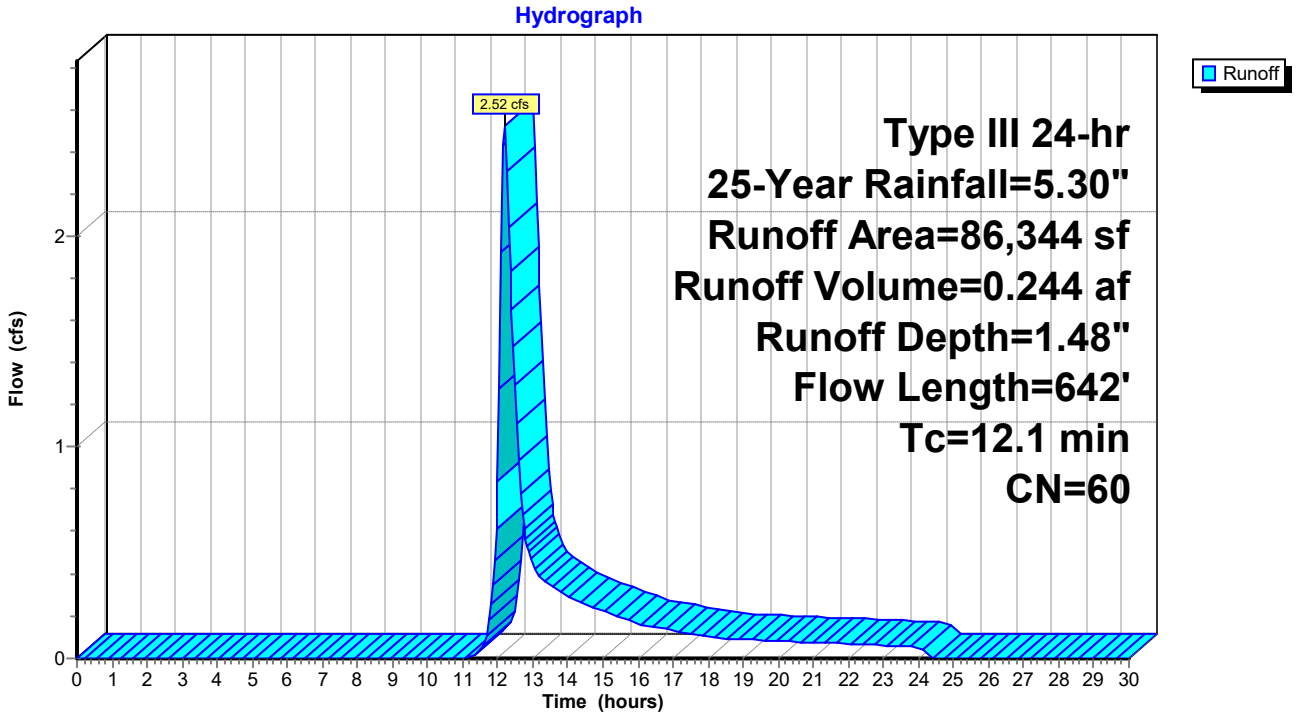
Runoff = 2.52 cfs @ 12.19 hrs, Volume= 0.244 af, Depth= 1.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.30"

Area (sf)	CN	Description
30,763	61	>75% Grass cover, Good, HSG B
49,996	55	Woods, Good, HSG B
5,585	98	Paved parking, HSG B
86,344	60	Weighted Average
80,759		93.53% Pervious Area
5,585		6.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	75	0.0580	0.24		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.0	10	0.0580	3.88		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.4	76	0.0400	3.22		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
2.1	126	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.8	84	0.0240	0.77		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	42	0.0690	4.23		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.3	103	0.0690	1.31		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	56	0.1070	1.64		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	26	0.3080	2.77		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	44	0.0450	4.31		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
12.1	642	Total			

Subcatchment E16: TO DP16



Summary for Subcatchment E2: TO DP#2

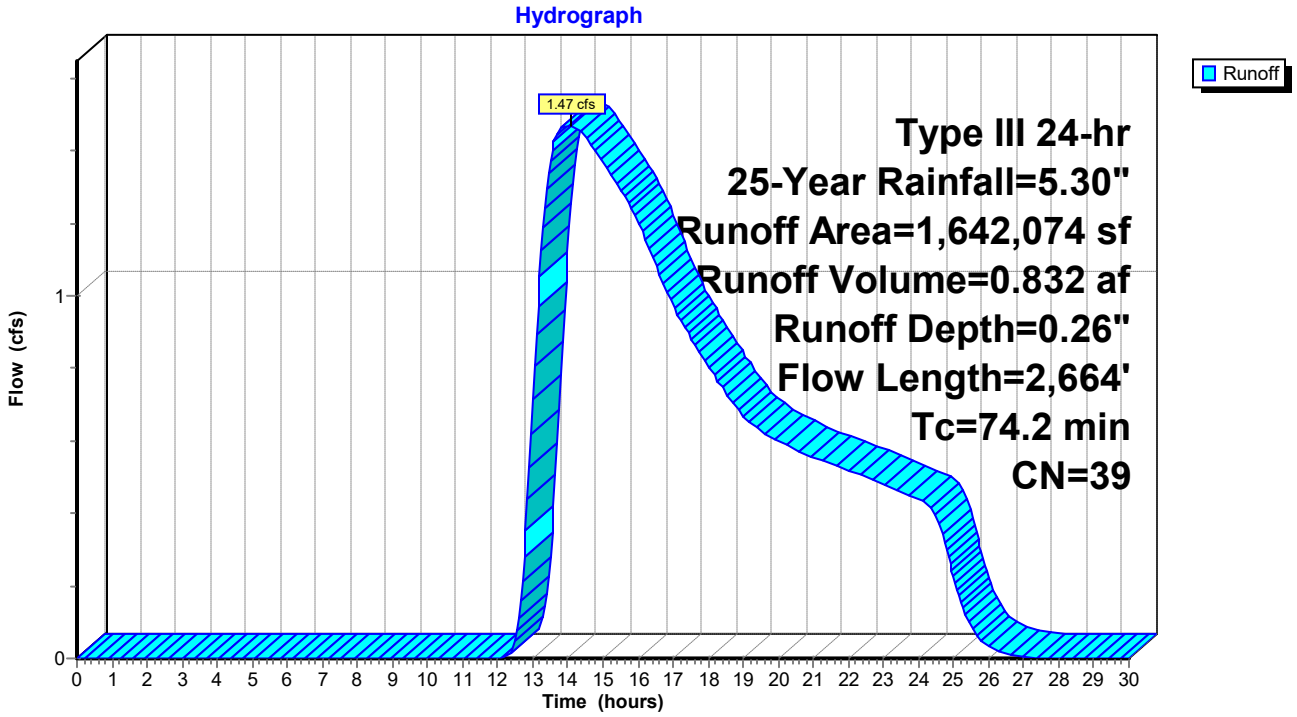
Runoff = 1.47 cfs @ 14.08 hrs, Volume= 0.832 af, Depth= 0.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.30"

Area (sf)	CN	Description
413,595	30	Brush, Good, HSG A
828,219	30	Woods, Good, HSG A
16,467	76	Gravel roads, HSG A
11,726	65	Brush, Good, HSG C
182,165	70	Woods, Good, HSG C
12,185	39	>75% Grass cover, Good, HSG A
290	98	Paved parking, HSG A
93,643	61	>75% Grass cover, Good, HSG B
35,816	55	Woods, Good, HSG B
7,095	98	Paved parking, HSG B
7,500	74	>75% Grass cover, Good, HSG C
30,041	70	Woods, Good, HSG C
3,332	98	Paved parking, HSG C
1,642,074	39	Weighted Average
1,631,357		99.35% Pervious Area
10,717		0.65% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.7	75	0.0750	0.26		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.2	52	0.0750	4.41		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.6	178	0.0900	4.83		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
7.7	463	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
14.5	475	0.0120	0.55		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
29.6	778	0.0077	0.44		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
16.9	643	0.0160	0.63		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
74.2	2,664	Total			

Subcatchment E2: TO DP#2



Summary for Subcatchment E3: TO DP#3

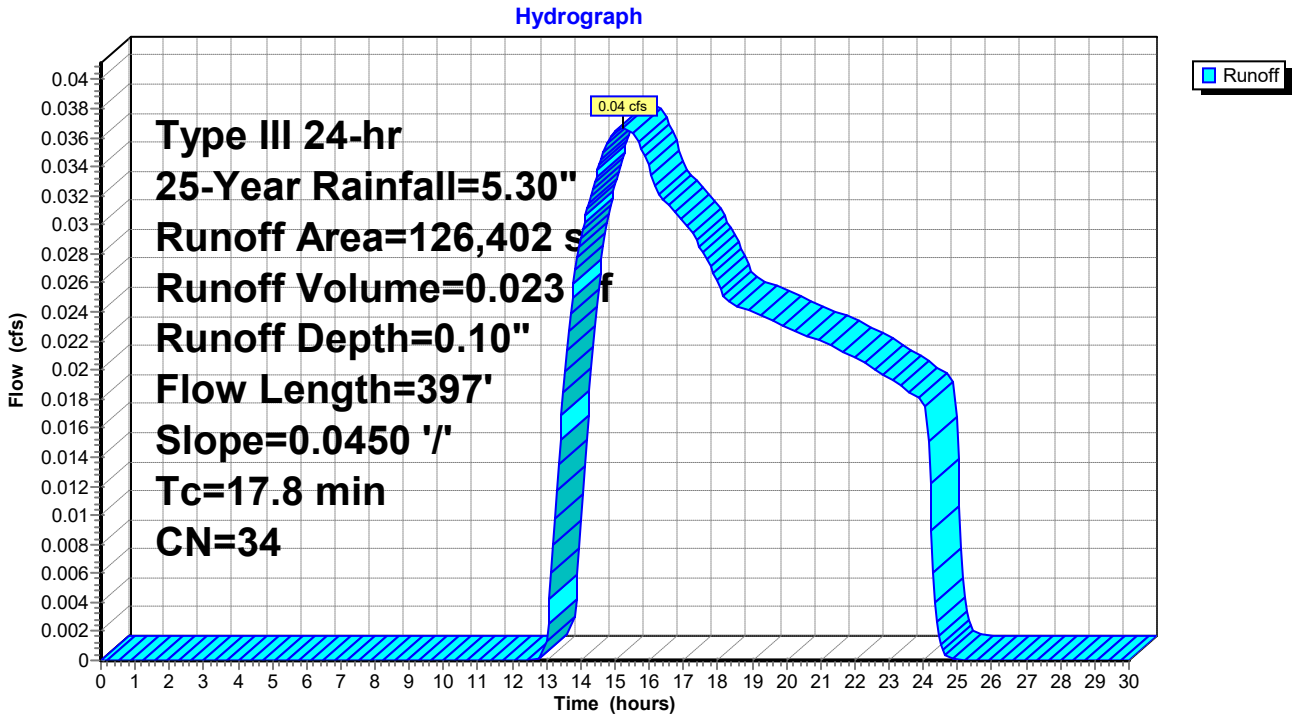
Runoff = 0.04 cfs @ 15.22 hrs, Volume= 0.023 af, Depth= 0.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.30"

Area (sf)	CN	Description
39,374	39	>75% Grass cover, Good, HSG A
83,903	30	Woods, Good, HSG A
3,125	98	Paved parking, HSG A
126,402	34	Weighted Average
123,277		97.53% Pervious Area
3,125		2.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.7	75	0.0450	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
5.1	322	0.0450	1.06		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
17.8	397	Total			

Subcatchment E3: TO DP#3



Summary for Reach 2R: WOODS

[62] Hint: Exceeded Reach 3R OUTLET depth by 0.01' @ 26.40 hrs

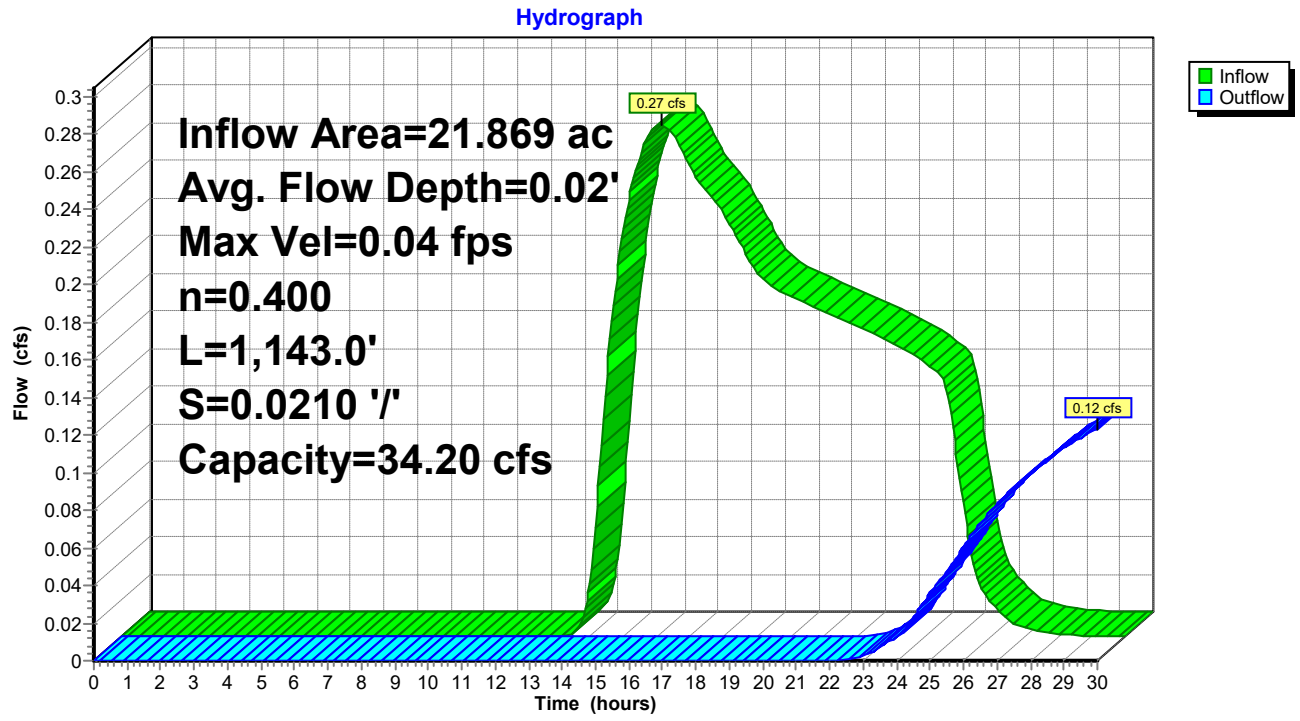
Inflow Area = 21.869 ac, 0.00% Impervious, Inflow Depth > 0.10" for 25-Year event
Inflow = 0.27 cfs @ 16.12 hrs, Volume= 0.176 af
Outflow = 0.12 cfs @ 30.00 hrs, Volume= 0.039 af, Atten= 55%, Lag= 832.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.04 fps, Min. Travel Time= 507.4 min
Avg. Velocity = 0.03 fps, Avg. Travel Time= 634.1 min

Peak Storage= 4,156 cf @ 24.57 hrs
Average Depth at Peak Storage= 0.02'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 34.20 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 1,143.0' Slope= 0.0210 '/'
Inlet Invert= 862.00', Outlet Invert= 838.00'

Reach 2R: WOODS



Summary for Reach 3R: WOODS

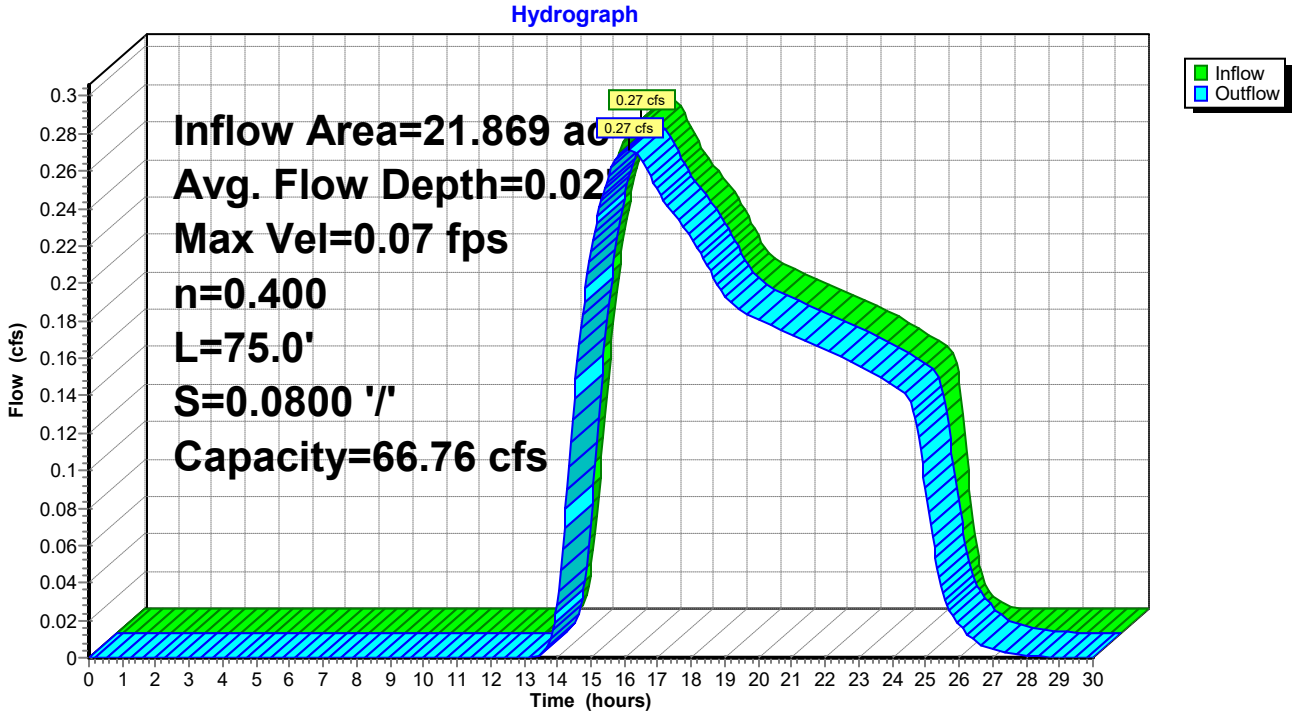
Inflow Area = 21.869 ac, 0.00% Impervious, Inflow Depth = 0.10" for 25-Year event
Inflow = 0.27 cfs @ 15.65 hrs, Volume= 0.176 af
Outflow = 0.27 cfs @ 16.12 hrs, Volume= 0.176 af, Atten= 1%, Lag= 28.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.07 fps, Min. Travel Time= 16.9 min
Avg. Velocity = 0.05 fps, Avg. Travel Time= 24.1 min

Peak Storage= 276 cf @ 15.84 hrs
Average Depth at Peak Storage= 0.02'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 66.76 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 75.0' Slope= 0.0800 '/'
Inlet Invert= 868.00', Outlet Invert= 862.00'

Reach 3R: WOODS



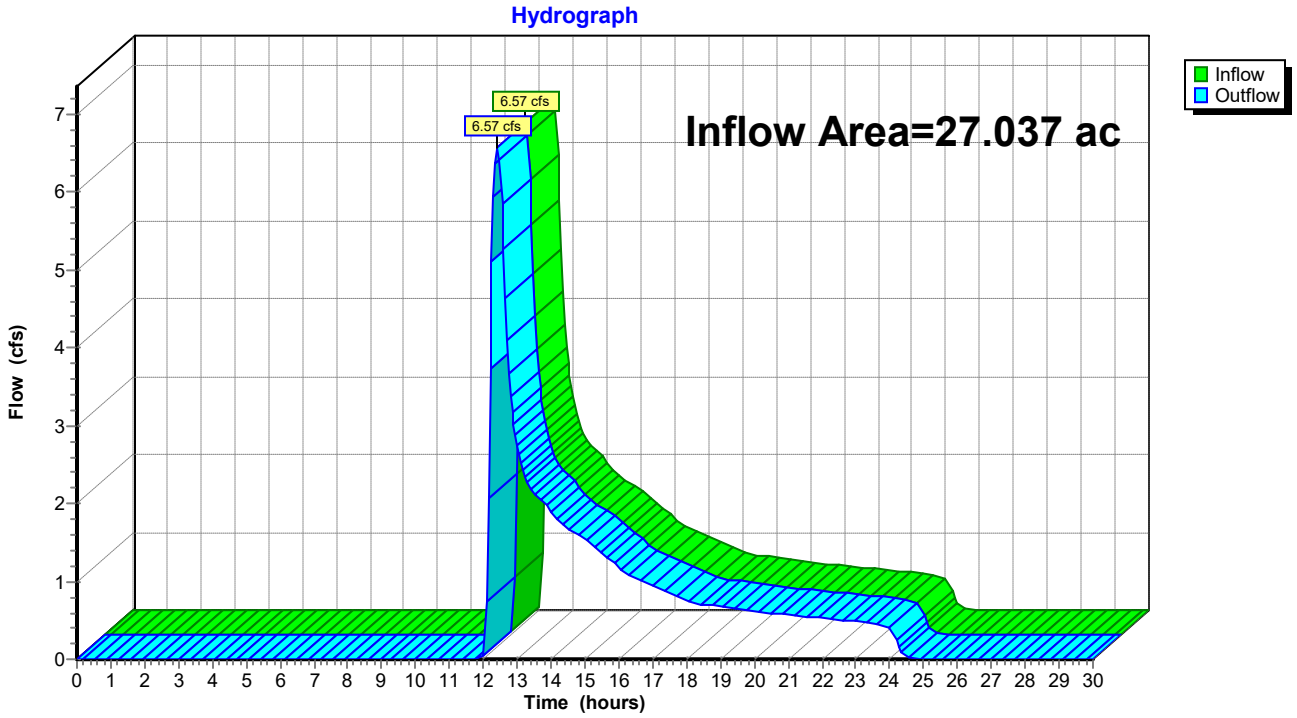
Summary for Reach DP1: DP#1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 27.037 ac, 0.03% Impervious, Inflow Depth = 0.54" for 25-Year event
Inflow = 6.57 cfs @ 12.42 hrs, Volume= 1.218 af
Outflow = 6.57 cfs @ 12.42 hrs, Volume= 1.218 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP1: DP#1



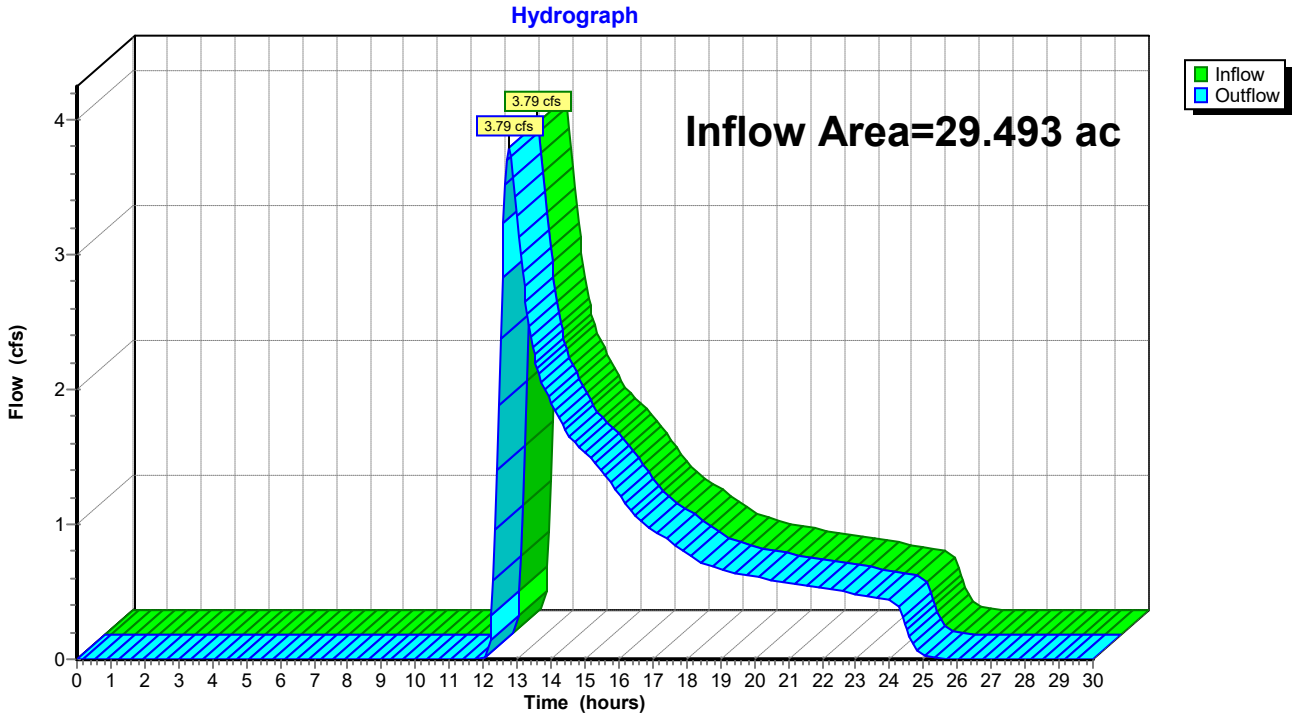
Summary for Reach DP12: DP12

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 29.493 ac, 0.00% Impervious, Inflow Depth = 0.44" for 25-Year event
Inflow = 3.79 cfs @ 12.77 hrs, Volume= 1.084 af
Outflow = 3.79 cfs @ 12.77 hrs, Volume= 1.084 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP12: DP12



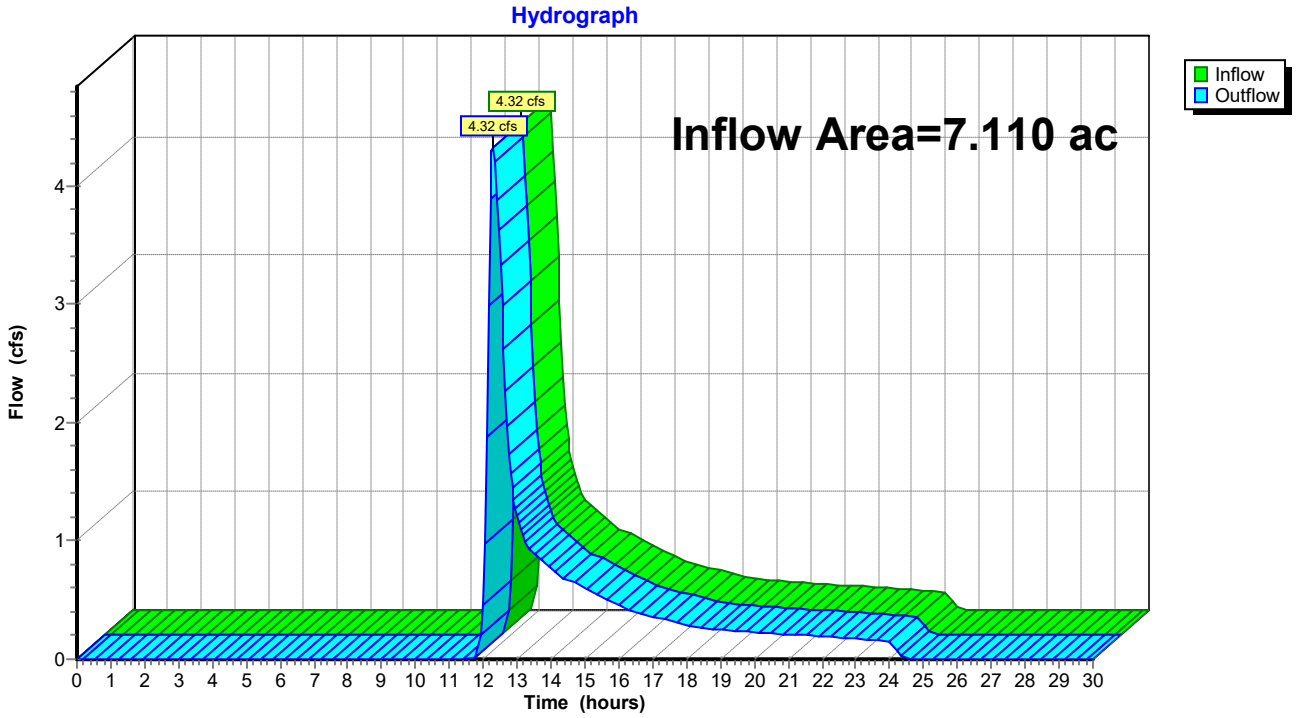
Summary for Reach DP13: DP13

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 7.110 ac, 0.00% Impervious, Inflow Depth = 0.94" for 25-Year event
Inflow = 4.32 cfs @ 12.28 hrs, Volume= 0.557 af
Outflow = 4.32 cfs @ 12.28 hrs, Volume= 0.557 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP13: DP13



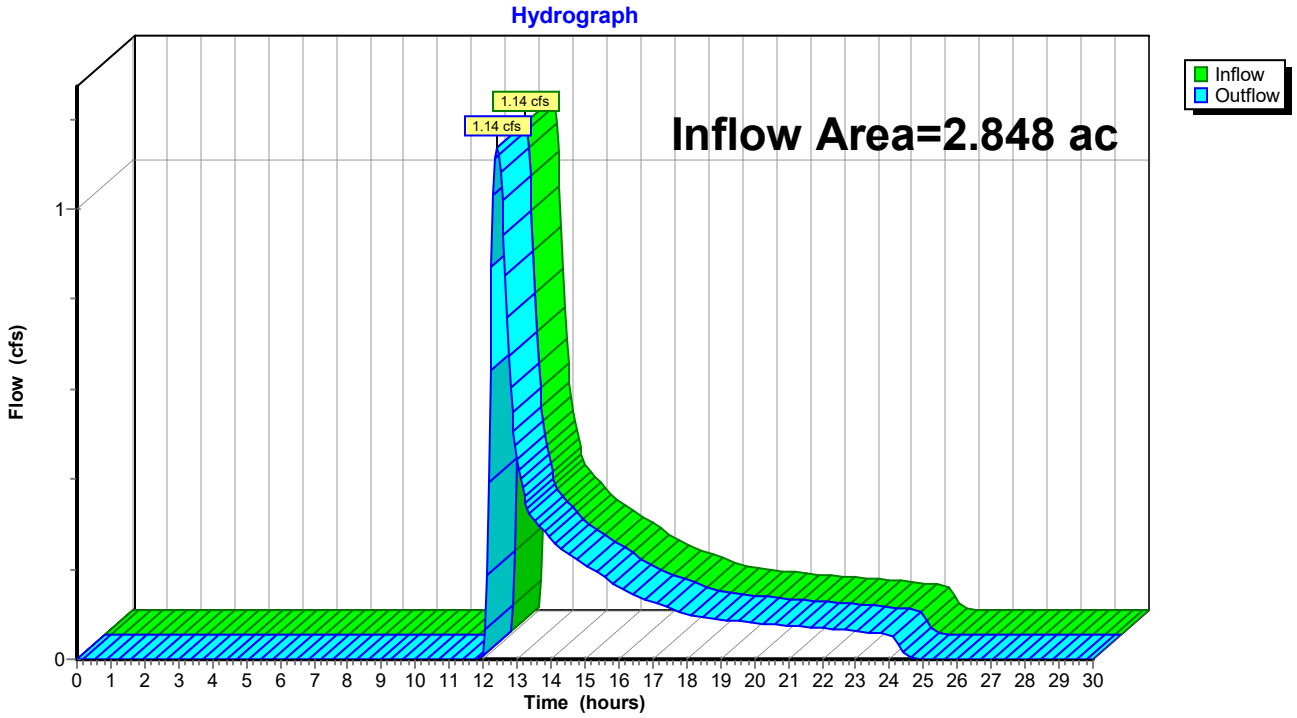
Summary for Reach DP14: DP4

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 2.848 ac, 0.00% Impervious, Inflow Depth = 0.76" for 25-Year event
Inflow = 1.14 cfs @ 12.40 hrs, Volume= 0.180 af
Outflow = 1.14 cfs @ 12.40 hrs, Volume= 0.180 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP14: DP4



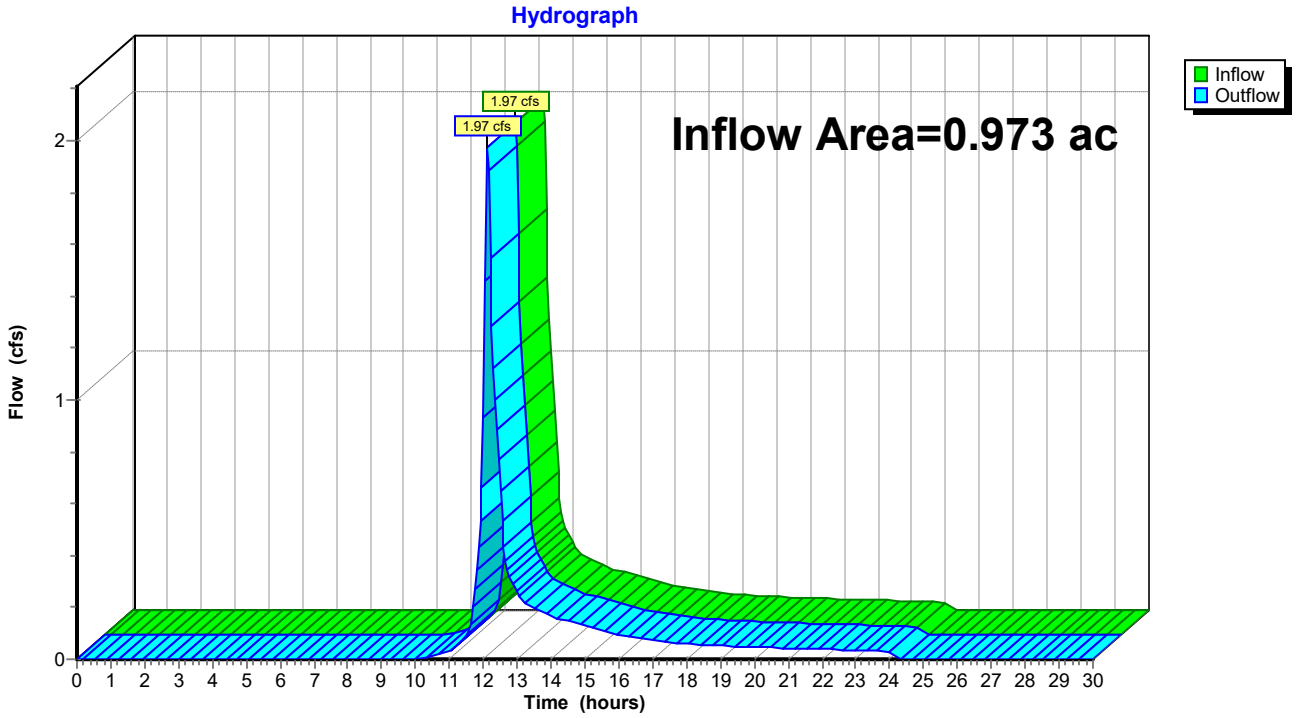
Summary for Reach DP15: DP15

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.973 ac, 15.50% Impervious, Inflow Depth = 1.94" for 25-Year event
Inflow = 1.97 cfs @ 12.12 hrs, Volume= 0.157 af
Outflow = 1.97 cfs @ 12.12 hrs, Volume= 0.157 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP15: DP15



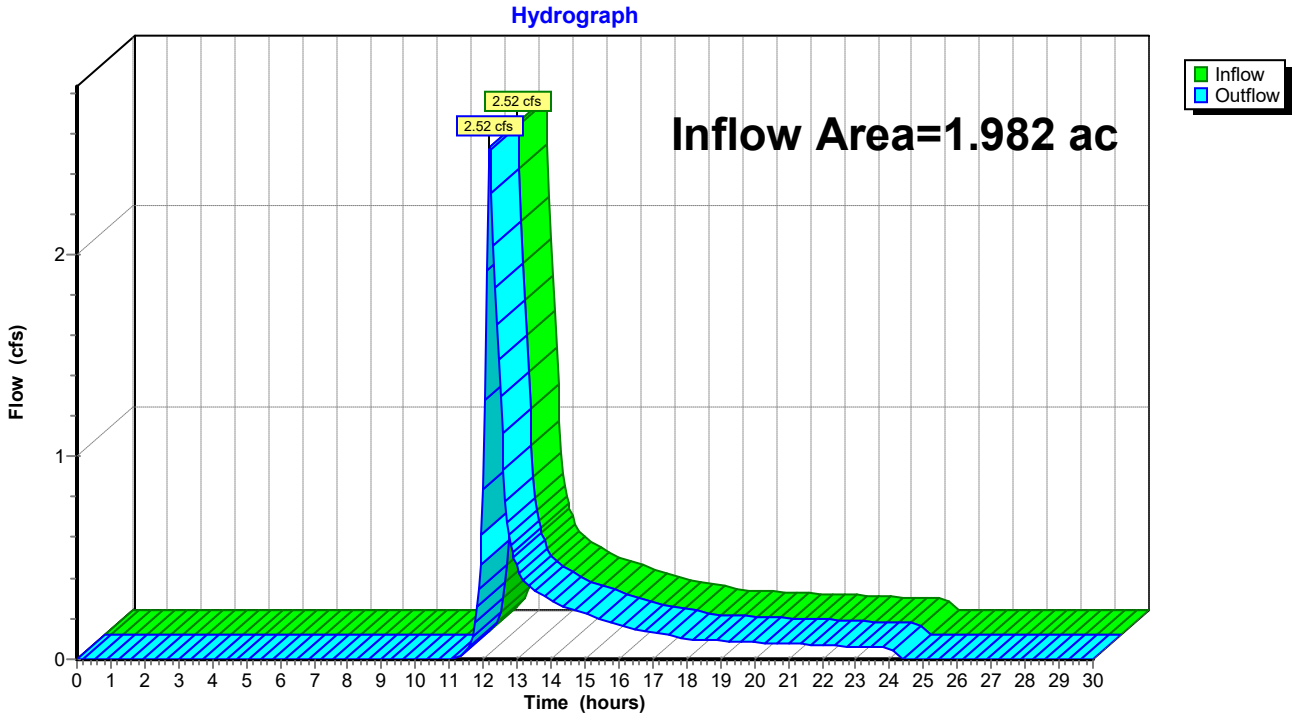
Summary for Reach DP16: DP16

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.982 ac, 6.47% Impervious, Inflow Depth = 1.48" for 25-Year event
Inflow = 2.52 cfs @ 12.19 hrs, Volume= 0.244 af
Outflow = 2.52 cfs @ 12.19 hrs, Volume= 0.244 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP16: DP16



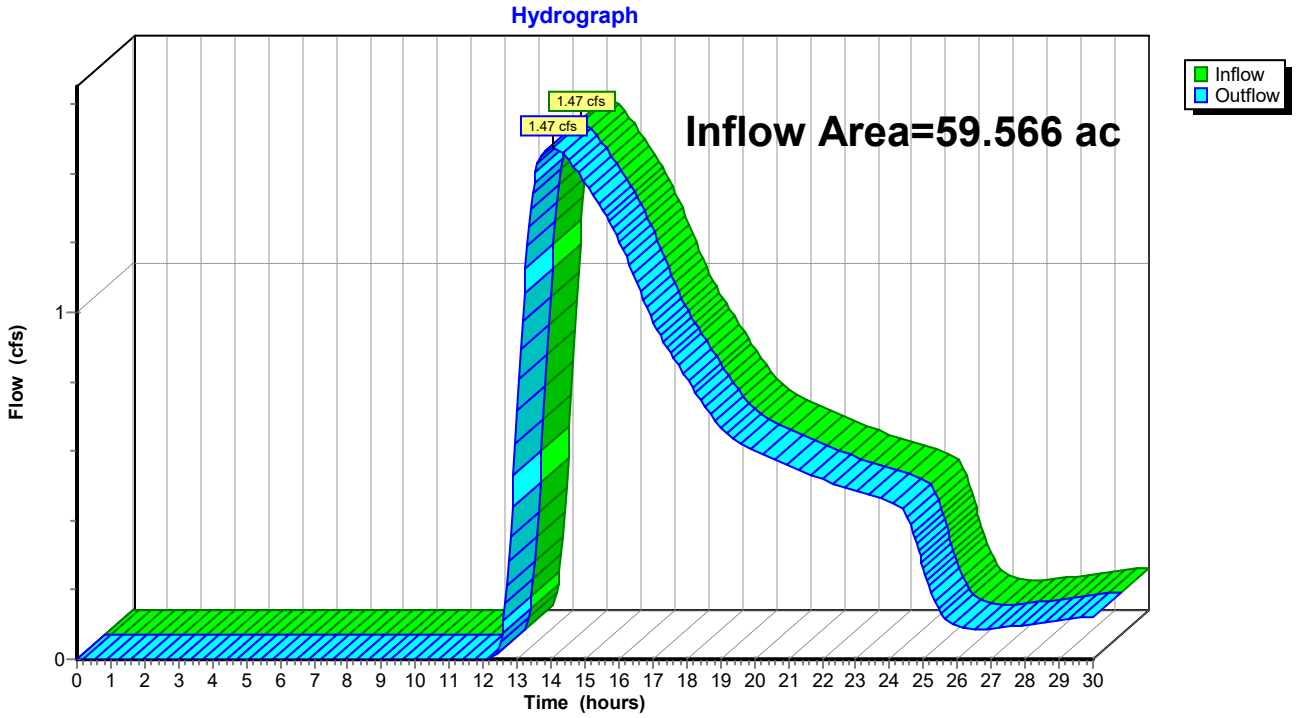
Summary for Reach DP2: DP#2

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 59.566 ac, 0.41% Impervious, Inflow Depth > 0.18" for 25-Year event
Inflow = 1.47 cfs @ 14.08 hrs, Volume= 0.871 af
Outflow = 1.47 cfs @ 14.08 hrs, Volume= 0.871 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP2: DP#2



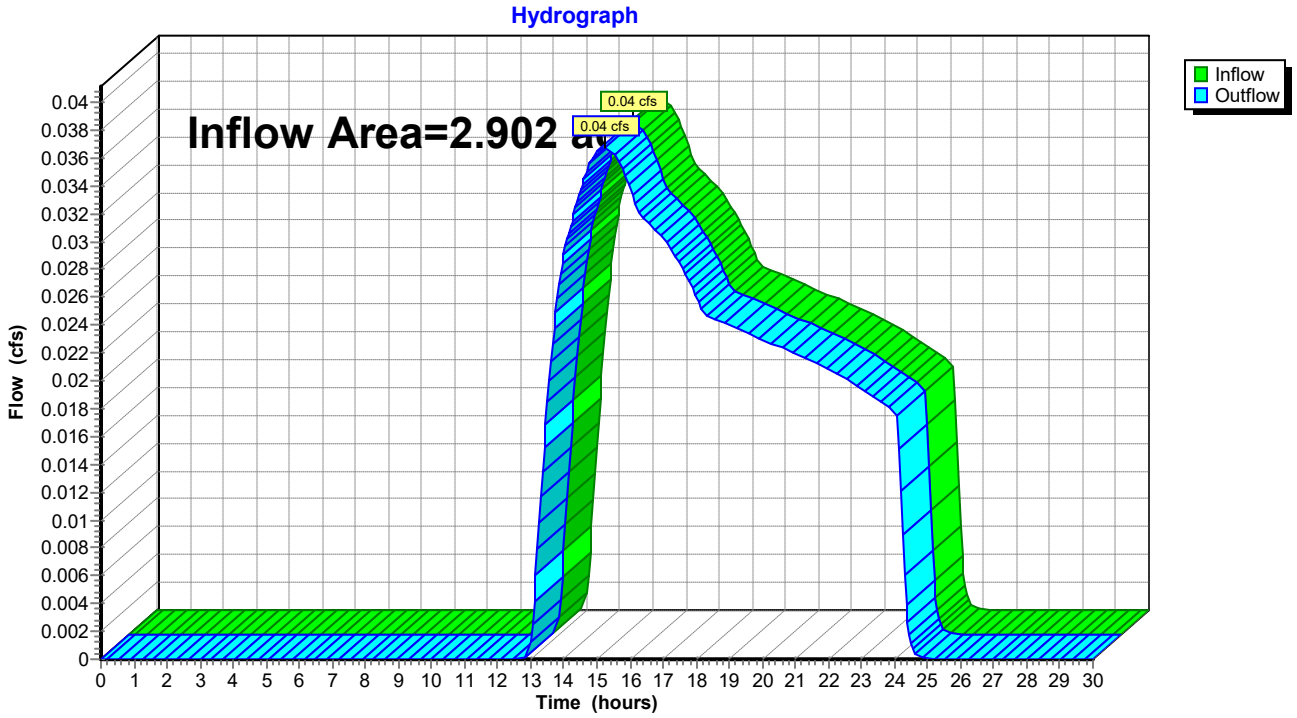
Summary for Reach DP3: DP#3

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 2.902 ac, 2.47% Impervious, Inflow Depth = 0.10" for 25-Year event
Inflow = 0.04 cfs @ 15.22 hrs, Volume= 0.023 af
Outflow = 0.04 cfs @ 15.22 hrs, Volume= 0.023 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP3: DP#3



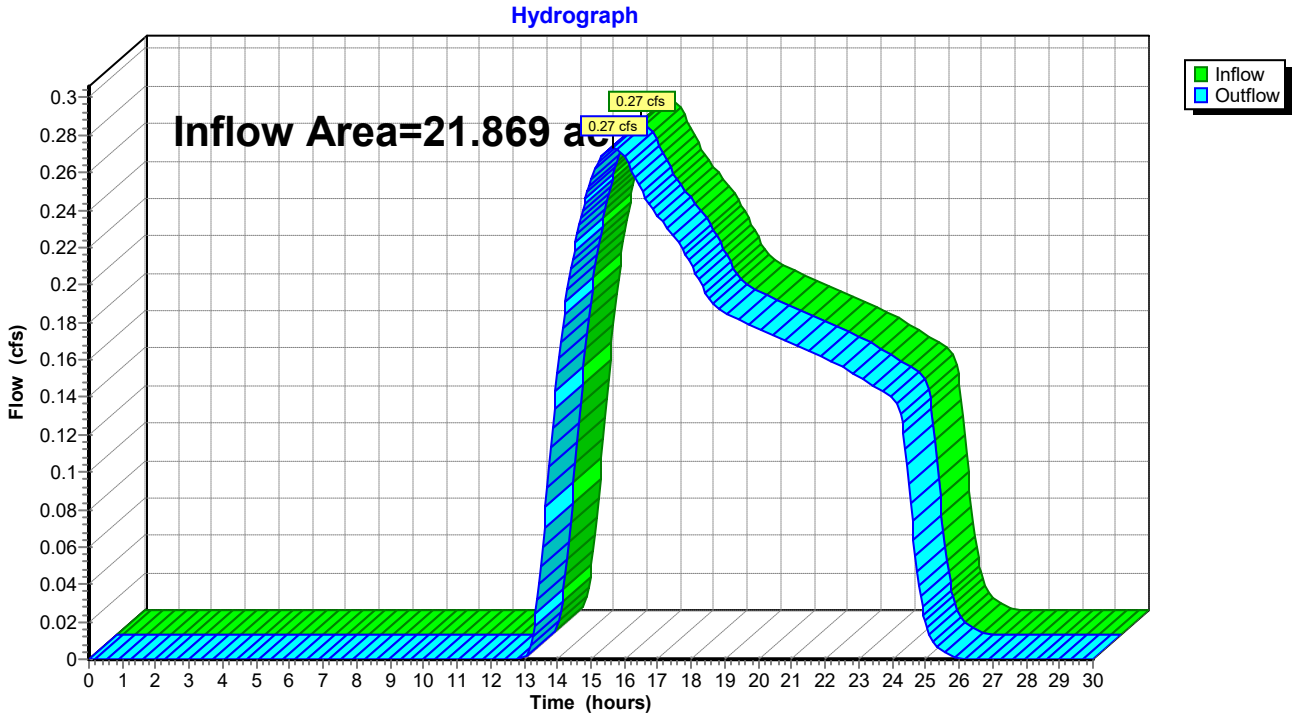
Summary for Reach WETLAND: .

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 21.869 ac, 0.00% Impervious, Inflow Depth = 0.10" for 25-Year event
Inflow = 0.27 cfs @ 15.65 hrs, Volume= 0.176 af
Outflow = 0.27 cfs @ 15.65 hrs, Volume= 0.176 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach WETLAND: .



Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment E1: TO DP#1 Runoff Area=1,177,737 sf 0.03% Impervious Runoff Depth=1.01"
Flow Length=1,210' Tc=15.4 min CN=45 Runoff=16.41 cfs 2.277 af

Subcatchment E11: TO 1P Runoff Area=952,607 sf 0.00% Impervious Runoff Depth=0.31"
Flow Length=1,750' Tc=44.7 min CN=34 Runoff=1.08 cfs 0.567 af

Subcatchment E12: TO DP12 Runoff Area=1,284,712 sf 0.00% Impervious Runoff Depth=0.87"
Flow Length=1,458' Tc=36.2 min CN=43 Runoff=10.37 cfs 2.129 af

Subcatchment E13: TO DP13 Runoff Area=309,709 sf 0.00% Impervious Runoff Depth=1.56"
Flow Length=401' Tc=15.8 min CN=52 Runoff=8.28 cfs 0.924 af

Subcatchment E14: TO DP14 Runoff Area=124,074 sf 0.00% Impervious Runoff Depth=1.32"
Flow Length=608' Tc=20.4 min CN=49 Runoff=2.37 cfs 0.313 af

Subcatchment E15: TO DP15 Runoff Area=42,393 sf 15.50% Impervious Runoff Depth=2.82"
Flow Length=187' Tc=7.9 min CN=66 Runoff=2.93 cfs 0.228 af

Subcatchment E16: TO DP16 Runoff Area=86,344 sf 6.47% Impervious Runoff Depth=2.26"
Flow Length=642' Tc=12.1 min CN=60 Runoff=4.04 cfs 0.373 af

Subcatchment E2: TO DP#2 Runoff Area=1,642,074 sf 0.65% Impervious Runoff Depth=0.60"
Flow Length=2,664' Tc=74.2 min CN=39 Runoff=4.97 cfs 1.878 af

Subcatchment E3: TO DP#3 Runoff Area=126,402 sf 2.47% Impervious Runoff Depth=0.31"
Flow Length=397' Slope=0.0450 '/' Tc=17.8 min CN=34 Runoff=0.19 cfs 0.075 af

Reach 2R: WOODS Avg. Flow Depth=0.04' Max Vel=0.06 fps Inflow=1.07 cfs 0.567 af
n=0.400 L=1,143.0' S=0.0210 '/' Capacity=34.20 cfs Outflow=0.53 cfs 0.393 af

Reach 3R: WOODS Avg. Flow Depth=0.04' Max Vel=0.13 fps Inflow=1.08 cfs 0.567 af
n=0.400 L=75.0' S=0.0800 '/' Capacity=66.76 cfs Outflow=1.07 cfs 0.567 af

Reach DP1: DP#1 Inflow=16.41 cfs 2.277 af
Outflow=16.41 cfs 2.277 af

Reach DP12: DP12 Inflow=10.37 cfs 2.129 af
Outflow=10.37 cfs 2.129 af

Reach DP13: DP13 Inflow=8.28 cfs 0.924 af
Outflow=8.28 cfs 0.924 af

Reach DP14: DP4 Inflow=2.37 cfs 0.313 af
Outflow=2.37 cfs 0.313 af

Reach DP15: DP15 Inflow=2.93 cfs 0.228 af
Outflow=2.93 cfs 0.228 af

Reach DP16: DP16 Inflow=4.04 cfs 0.373 af
Outflow=4.04 cfs 0.373 af

Reach DP2: DP#2 Inflow=4.97 cfs 2.272 af
Outflow=4.97 cfs 2.272 af

Reach DP3: DP#3 Inflow=0.19 cfs 0.075 af
Outflow=0.19 cfs 0.075 af

Reach WETLAND: . Inflow=1.08 cfs 0.567 af
Outflow=1.08 cfs 0.567 af

Total Runoff Area = 131.911 ac Runoff Volume = 8.763 af Average Runoff Depth = 0.80"
99.54% Pervious = 131.307 ac 0.46% Impervious = 0.604 ac

Summary for Subcatchment E1: TO DP#1

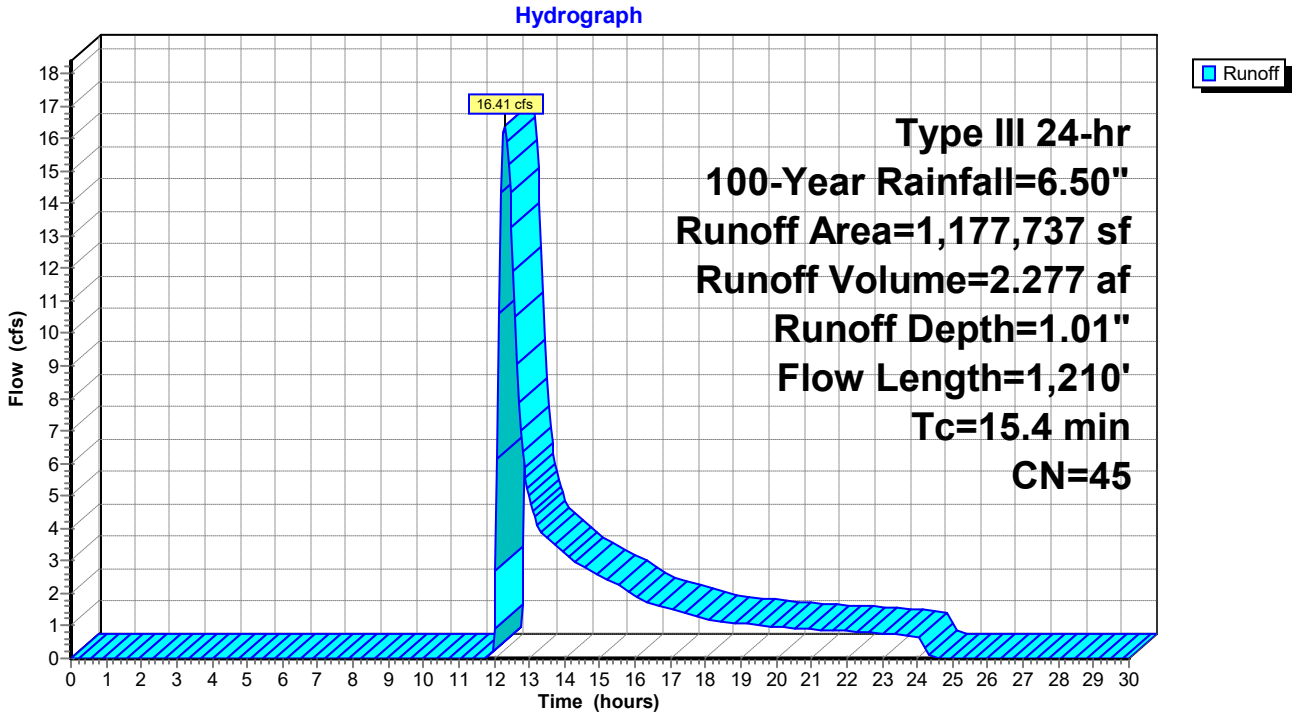
Runoff = 16.41 cfs @ 12.29 hrs, Volume= 2.277 af, Depth= 1.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.50"

Area (sf)	CN	Description
151,677	30	Brush, Good, HSG A
588,429	30	Woods, Good, HSG A
176,386	65	Brush, Good, HSG C
118,566	70	Woods, Good, HSG C
3,044	76	Gravel roads, HSG A
125,807	77	Woods, Good, HSG D
8,101	61	>75% Grass cover, Good, HSG B
5,424	55	Woods, Good, HSG B
303	98	Paved parking, HSG B
1,177,737	45	Weighted Average
1,177,434		99.97% Pervious Area
303		0.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.7	75	0.0760	0.27		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.2	56	0.0760	4.44		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.0	283	0.0860	4.72		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
5.9	592	0.1100	1.66		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.6	204	0.0350	0.94		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.4	1,210	Total			

Subcatchment E1: TO DP#1



Summary for Subcatchment E11: TO 1P

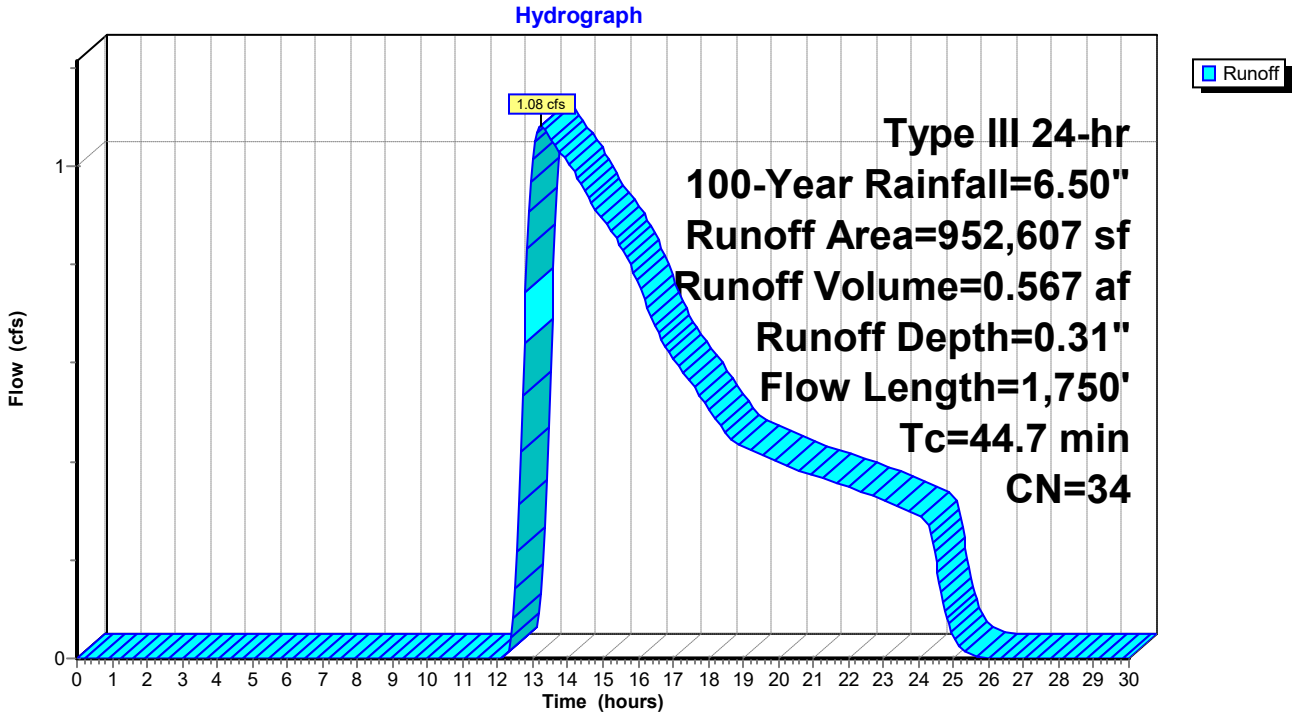
Runoff = 1.08 cfs @ 13.23 hrs, Volume= 0.567 af, Depth= 0.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.50"

Area (sf)	CN	Description
48,242	39	>75% Grass cover, Good, HSG A
806,992	30	Woods, Good, HSG A
3,389	96	Gravel surface, HSG A
30,698	61	>75% Grass cover, Good, HSG B
40,984	55	Woods, Good, HSG B
1,942	96	Gravel surface, HSG B
5,602	74	>75% Grass cover, Good, HSG C
12,838	70	Woods, Good, HSG C
1,920	96	Gravel surface, HSG C
952,607	34	Weighted Average
952,607		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.2	75	0.0410	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
4.5	254	0.0360	0.95		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.5	52	0.1150	1.70		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.7	46	0.0430	1.04		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.0	95	0.1050	1.62		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
11.2	626	0.0350	0.94		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.5	93	0.0310	2.83		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
4.4	258	0.0390	0.99		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
6.7	128	0.0040	0.32		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.8	108	0.0040	1.02		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.2	15	0.0040	1.28		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
44.7	1,750	Total			

Subcatchment E11: TO 1P



Summary for Subcatchment E12: TO DP12

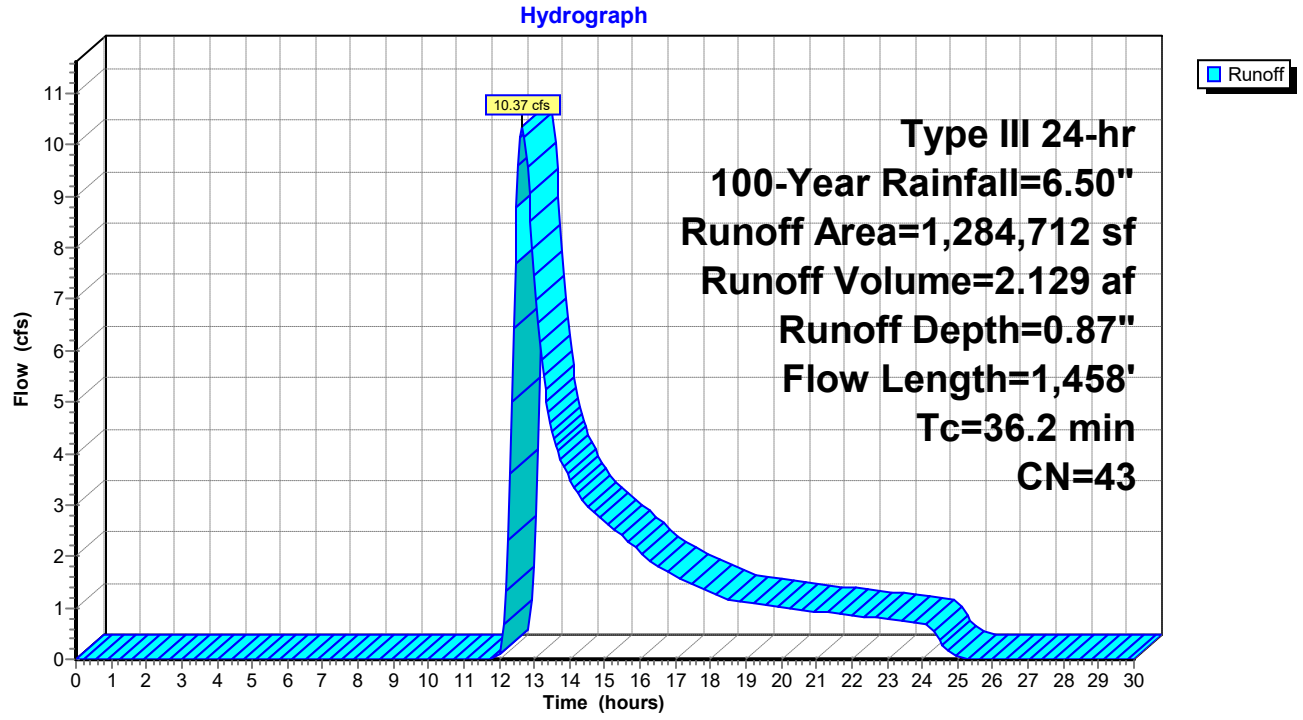
Runoff = 10.37 cfs @ 12.66 hrs, Volume= 2.129 af, Depth= 0.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.50"

Area (sf)	CN	Description
53,655	39	>75% Grass cover, Good, HSG A
607,934	30	Woods, Good, HSG A
127,280	61	>75% Grass cover, Good, HSG B
495,843	55	Woods, Good, HSG B
1,284,712	43	Weighted Average
1,284,712		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	75	0.0500	0.22		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
1.1	242	0.0500	3.60		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
8.7	601	0.0530	1.15		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
20.8	540	0.0075	0.43		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
36.2	1,458	Total			

Subcatchment E12: TO DP12



Summary for Subcatchment E13: TO DP13

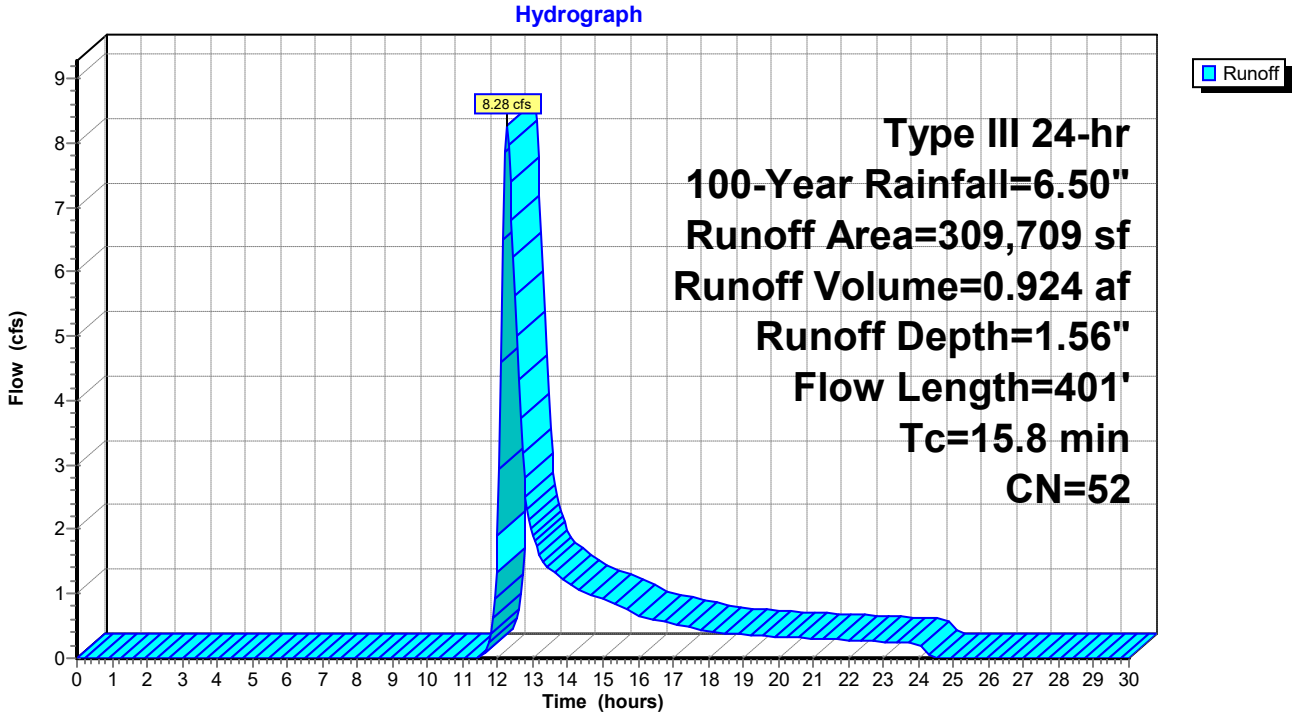
Runoff = 8.28 cfs @ 12.25 hrs, Volume= 0.924 af, Depth= 1.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.50"

Area (sf)	CN	Description
33,614	30	Woods, Good, HSG A
276,095	55	Woods, Good, HSG B
309,709	52	Weighted Average
309,709		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	75	0.0480	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
0.8	51	0.0480	1.10		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.0	90	0.0890	1.49		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.6	185	0.1410	1.88		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.8	401	Total			

Subcatchment E13: TO DP13



Summary for Subcatchment E14: TO DP14

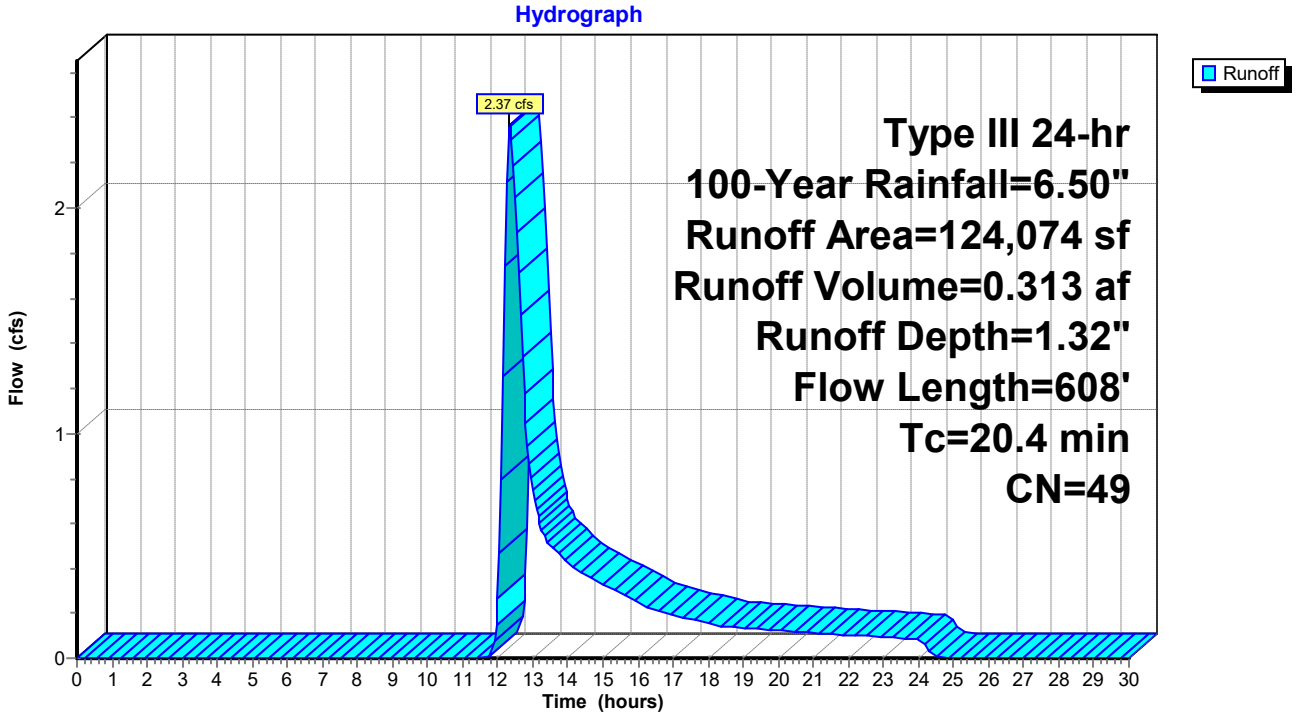
Runoff = 2.37 cfs @ 12.35 hrs, Volume= 0.313 af, Depth= 1.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.50"

Area (sf)	CN	Description
27,356	30	Woods, Good, HSG A
96,718	55	Woods, Good, HSG B
124,074	49	Weighted Average
124,074		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.6	75	0.0380	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
4.1	293	0.0560	1.18		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.0	124	0.1770	2.10		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.7	116	0.0500	1.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
20.4	608	Total			

Subcatchment E14: TO DP14



Summary for Subcatchment E15: TO DP15

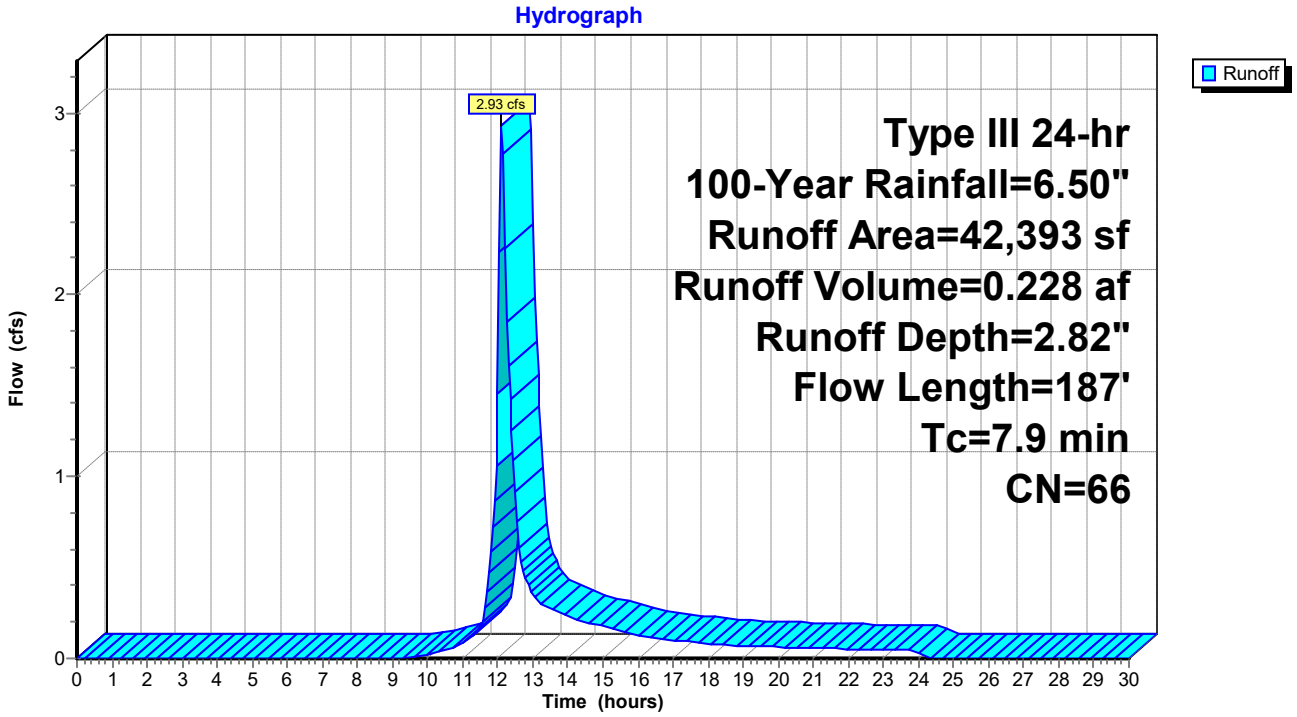
Runoff = 2.93 cfs @ 12.12 hrs, Volume= 0.228 af, Depth= 2.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.50"

Area (sf)	CN	Description
31,968	61	>75% Grass cover, Good, HSG B
3,854	55	Woods, Good, HSG B
6,571	98	Paved parking, HSG B
42,393	66	Weighted Average
35,822		84.50% Pervious Area
6,571		15.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	67	0.0300	0.18		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.8	8	0.0800	0.17		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.2	48	0.0800	4.55		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.2	19	0.0800	1.41		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.5	45	0.1110	1.67		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
7.9	187	Total			

Subcatchment E15: TO DP15



Summary for Subcatchment E16: TO DP16

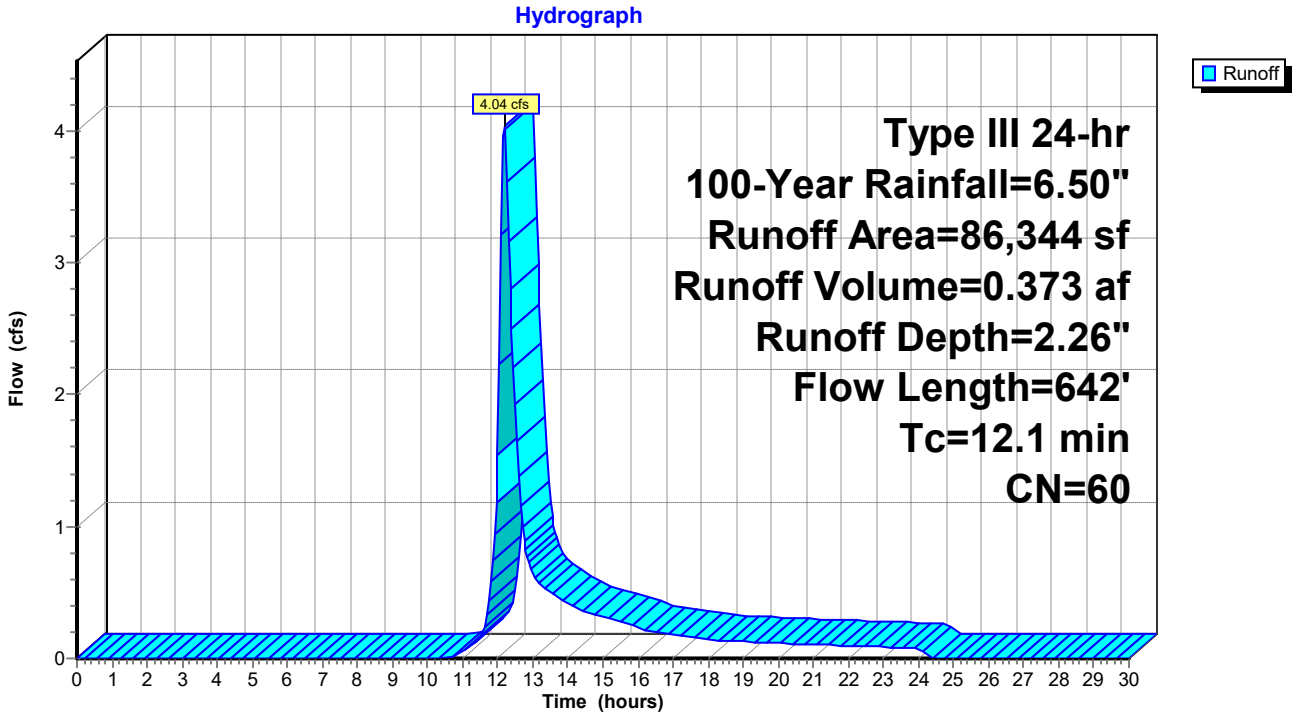
Runoff = 4.04 cfs @ 12.18 hrs, Volume= 0.373 af, Depth= 2.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.50"

Area (sf)	CN	Description
30,763	61	>75% Grass cover, Good, HSG B
49,996	55	Woods, Good, HSG B
5,585	98	Paved parking, HSG B
86,344	60	Weighted Average
80,759		93.53% Pervious Area
5,585		6.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	75	0.0580	0.24		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.0	10	0.0580	3.88		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.4	76	0.0400	3.22		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
2.1	126	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.8	84	0.0240	0.77		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	42	0.0690	4.23		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.3	103	0.0690	1.31		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	56	0.1070	1.64		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	26	0.3080	2.77		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	44	0.0450	4.31		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
12.1	642	Total			

Subcatchment E16: TO DP16



Summary for Subcatchment E2: TO DP#2

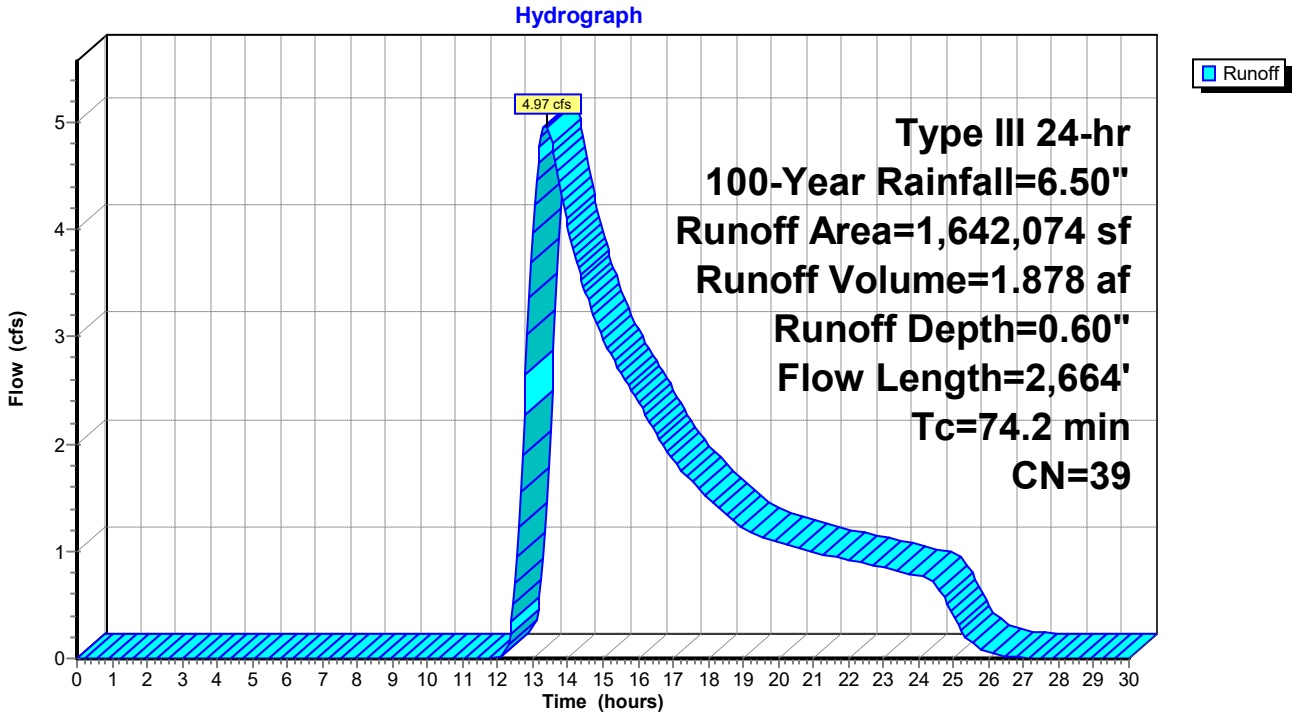
Runoff = 4.97 cfs @ 13.38 hrs, Volume= 1.878 af, Depth= 0.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.50"

Area (sf)	CN	Description
413,595	30	Brush, Good, HSG A
828,219	30	Woods, Good, HSG A
16,467	76	Gravel roads, HSG A
11,726	65	Brush, Good, HSG C
182,165	70	Woods, Good, HSG C
12,185	39	>75% Grass cover, Good, HSG A
290	98	Paved parking, HSG A
93,643	61	>75% Grass cover, Good, HSG B
35,816	55	Woods, Good, HSG B
7,095	98	Paved parking, HSG B
7,500	74	>75% Grass cover, Good, HSG C
30,041	70	Woods, Good, HSG C
3,332	98	Paved parking, HSG C
1,642,074	39	Weighted Average
1,631,357		99.35% Pervious Area
10,717		0.65% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.7	75	0.0750	0.26		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.2	52	0.0750	4.41		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.6	178	0.0900	4.83		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
7.7	463	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
14.5	475	0.0120	0.55		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
29.6	778	0.0077	0.44		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
16.9	643	0.0160	0.63		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
74.2	2,664	Total			

Subcatchment E2: TO DP#2



Summary for Subcatchment E3: TO DP#3

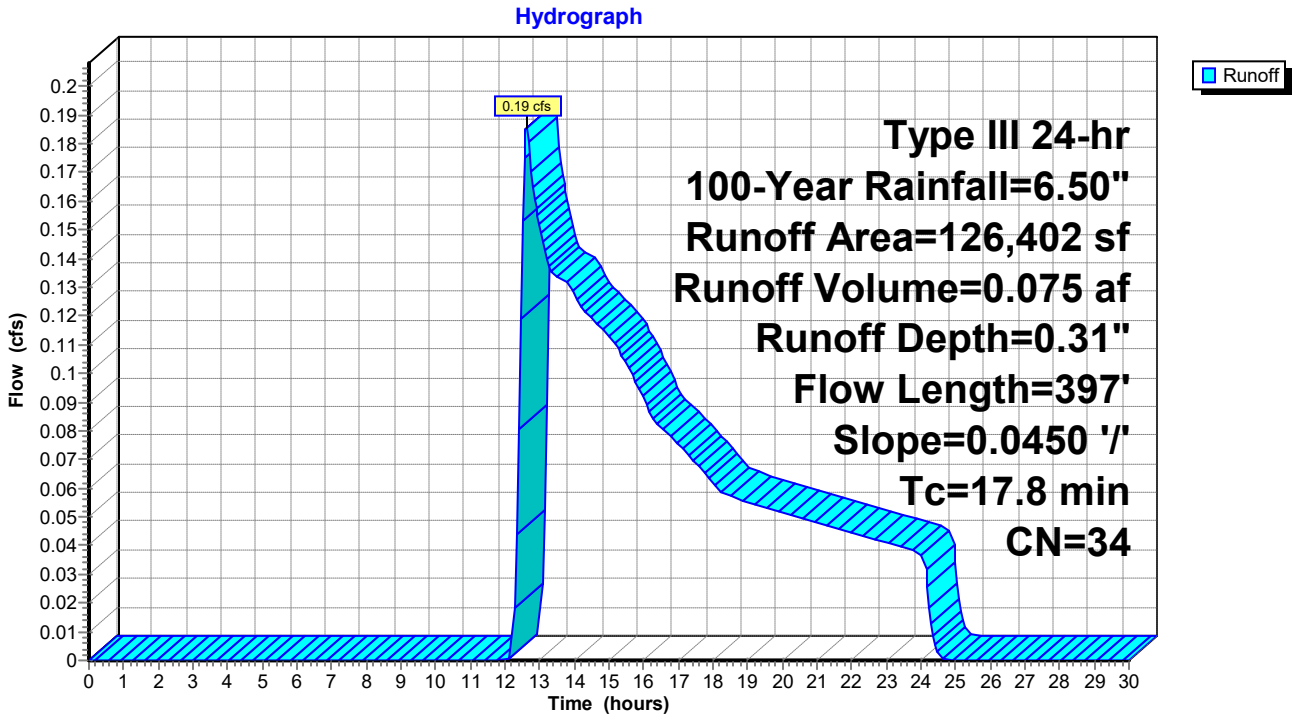
Runoff = 0.19 cfs @ 12.62 hrs, Volume= 0.075 af, Depth= 0.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.50"

Area (sf)	CN	Description
39,374	39	>75% Grass cover, Good, HSG A
83,903	30	Woods, Good, HSG A
3,125	98	Paved parking, HSG A
126,402	34	Weighted Average
123,277		97.53% Pervious Area
3,125		2.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.7	75	0.0450	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
5.1	322	0.0450	1.06		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
17.8	397	Total			

Subcatchment E3: TO DP#3



Summary for Reach 2R: WOODS

[62] Hint: Exceeded Reach 3R OUTLET depth by 0.03' @ 25.90 hrs

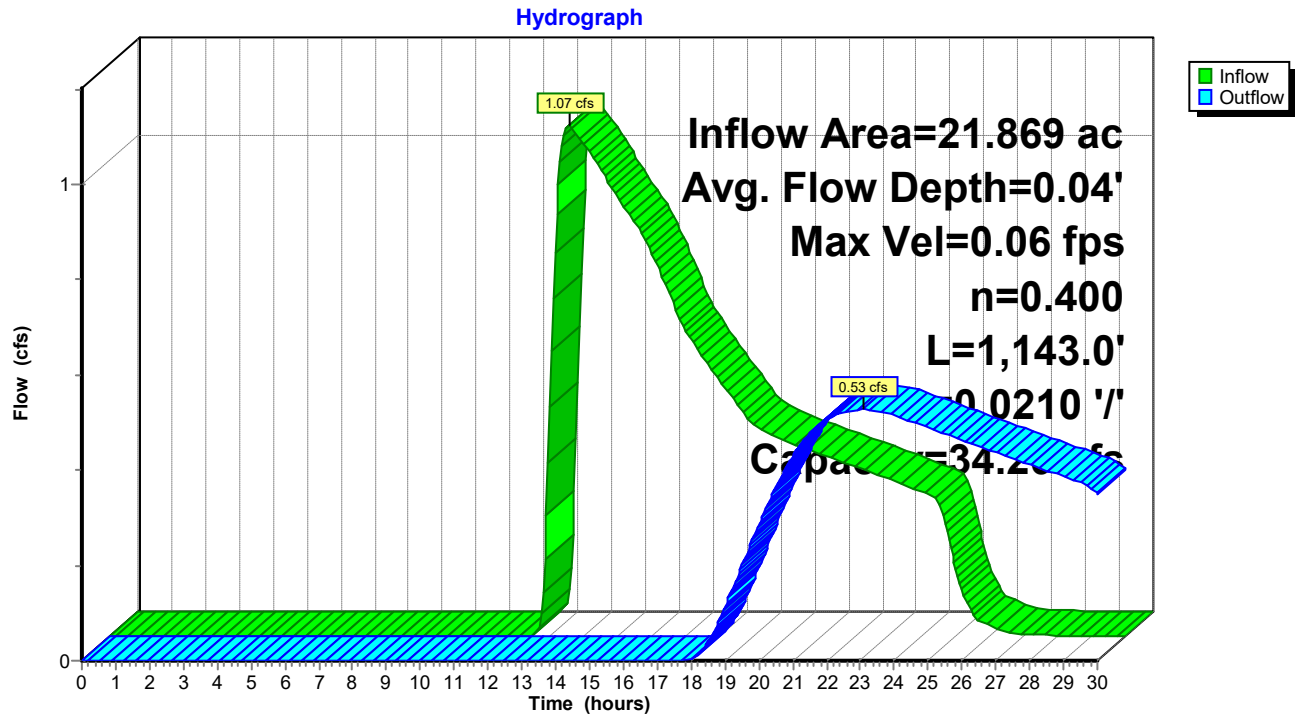
Inflow Area = 21.869 ac, 0.00% Impervious, Inflow Depth = 0.31" for 100-Year event
Inflow = 1.07 cfs @ 13.56 hrs, Volume= 0.567 af
Outflow = 0.53 cfs @ 23.08 hrs, Volume= 0.393 af, Atten= 51%, Lag= 571.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.06 fps, Min. Travel Time= 297.2 min
Avg. Velocity = 0.05 fps, Avg. Travel Time= 373.6 min

Peak Storage= 9,413 cf @ 18.12 hrs
Average Depth at Peak Storage= 0.04'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 34.20 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 1,143.0' Slope= 0.0210 '/'
Inlet Invert= 862.00', Outlet Invert= 838.00'

Reach 2R: WOODS



Summary for Reach 3R: WOODS

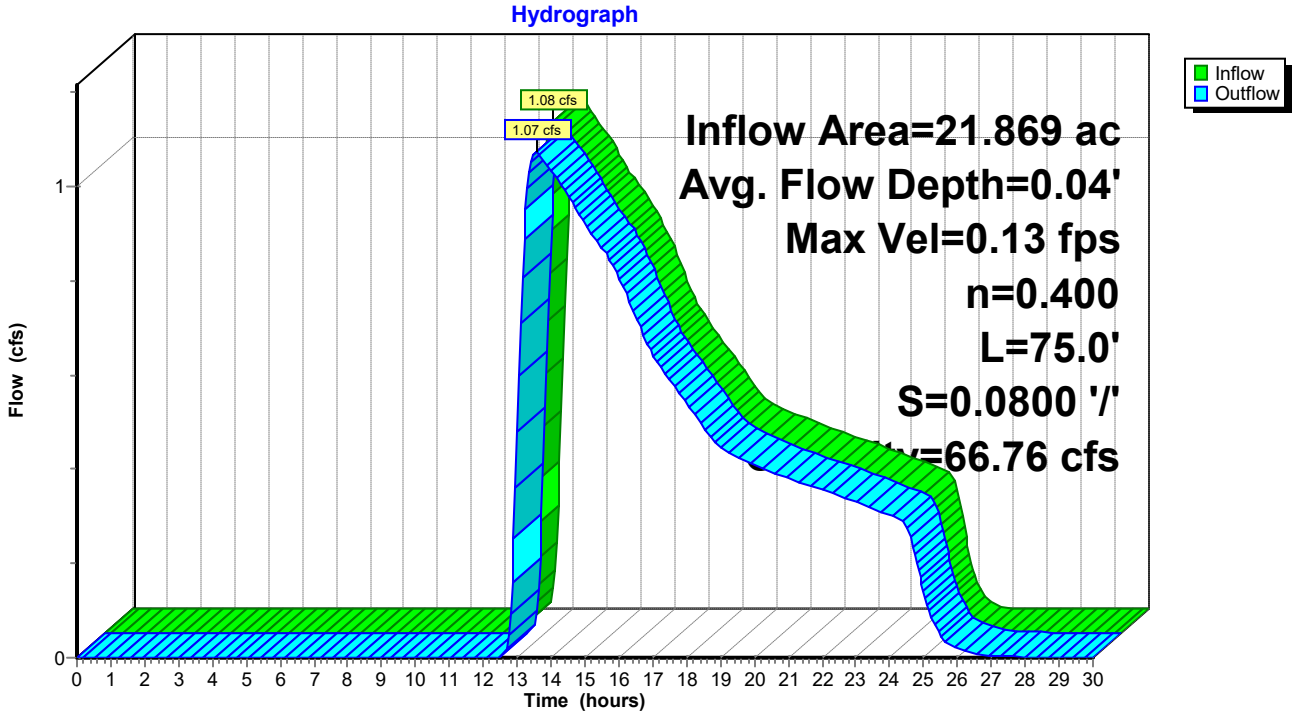
Inflow Area = 21.869 ac, 0.00% Impervious, Inflow Depth = 0.31" for 100-Year event
Inflow = 1.08 cfs @ 13.23 hrs, Volume= 0.567 af
Outflow = 1.07 cfs @ 13.56 hrs, Volume= 0.567 af, Atten= 1%, Lag= 19.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.13 fps, Min. Travel Time= 9.8 min
Avg. Velocity = 0.08 fps, Avg. Travel Time= 16.5 min

Peak Storage= 633 cf @ 13.39 hrs
Average Depth at Peak Storage= 0.04'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 66.76 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 75.0' Slope= 0.0800 '/'
Inlet Invert= 868.00', Outlet Invert= 862.00'

Reach 3R: WOODS



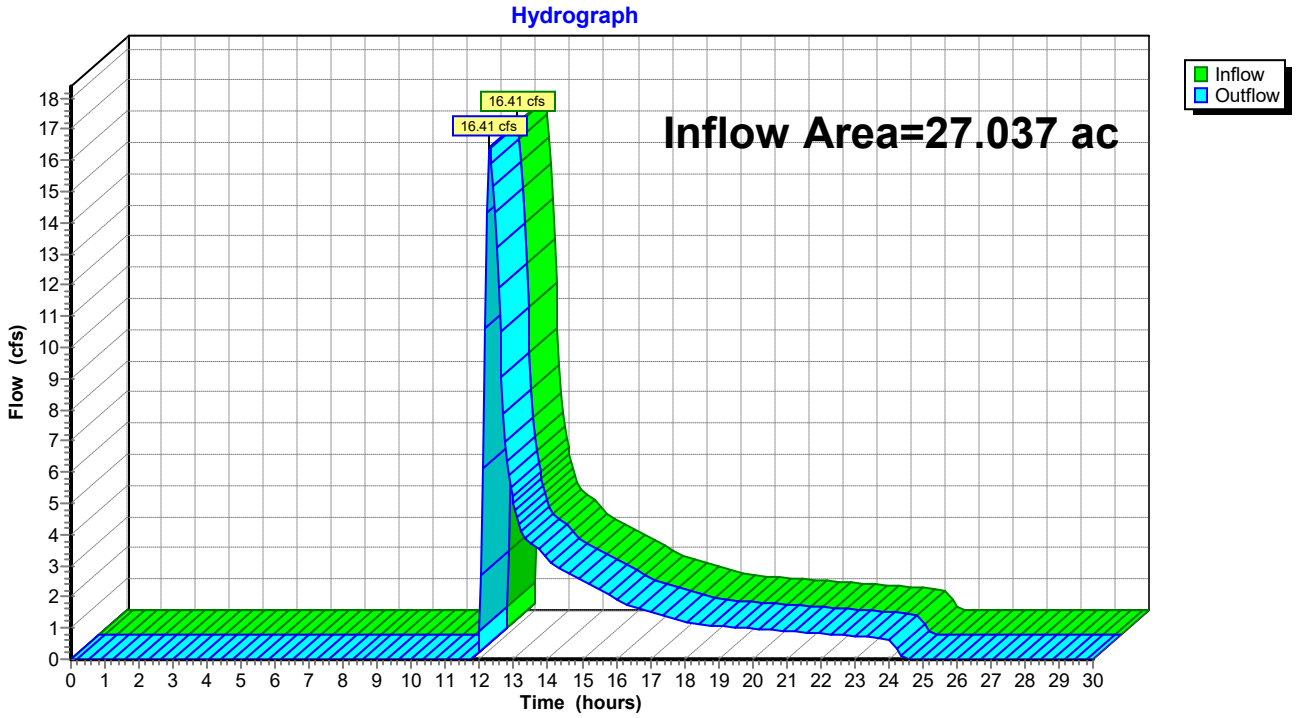
Summary for Reach DP1: DP#1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 27.037 ac, 0.03% Impervious, Inflow Depth = 1.01" for 100-Year event
Inflow = 16.41 cfs @ 12.29 hrs, Volume= 2.277 af
Outflow = 16.41 cfs @ 12.29 hrs, Volume= 2.277 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP1: DP#1



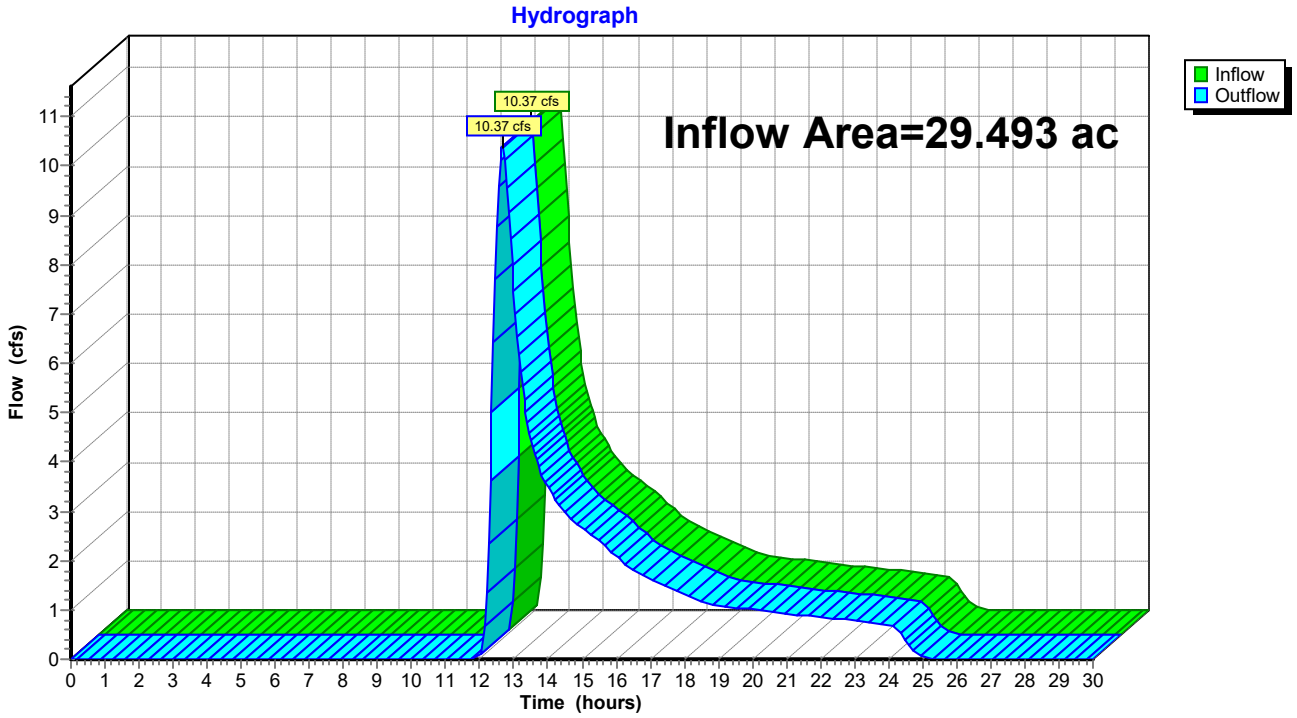
Summary for Reach DP12: DP12

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 29.493 ac, 0.00% Impervious, Inflow Depth = 0.87" for 100-Year event
Inflow = 10.37 cfs @ 12.66 hrs, Volume= 2.129 af
Outflow = 10.37 cfs @ 12.66 hrs, Volume= 2.129 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP12: DP12



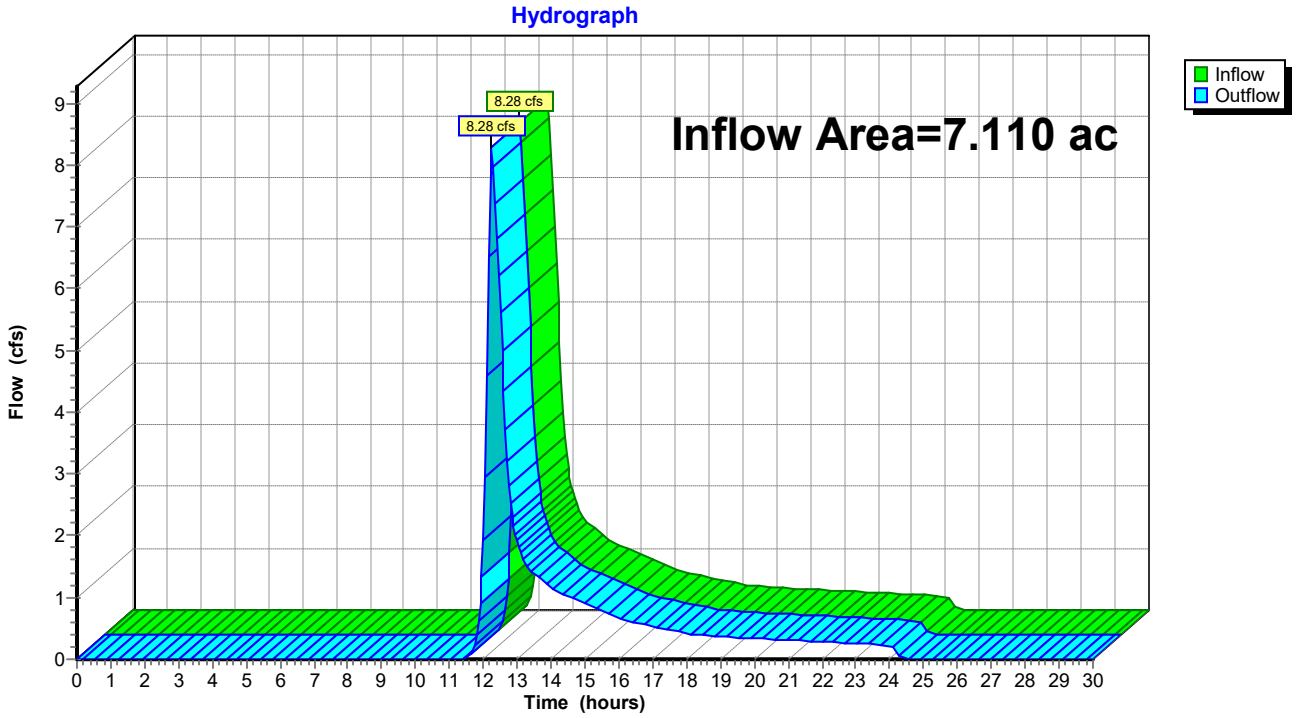
Summary for Reach DP13: DP13

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 7.110 ac, 0.00% Impervious, Inflow Depth = 1.56" for 100-Year event
Inflow = 8.28 cfs @ 12.25 hrs, Volume= 0.924 af
Outflow = 8.28 cfs @ 12.25 hrs, Volume= 0.924 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP13: DP13



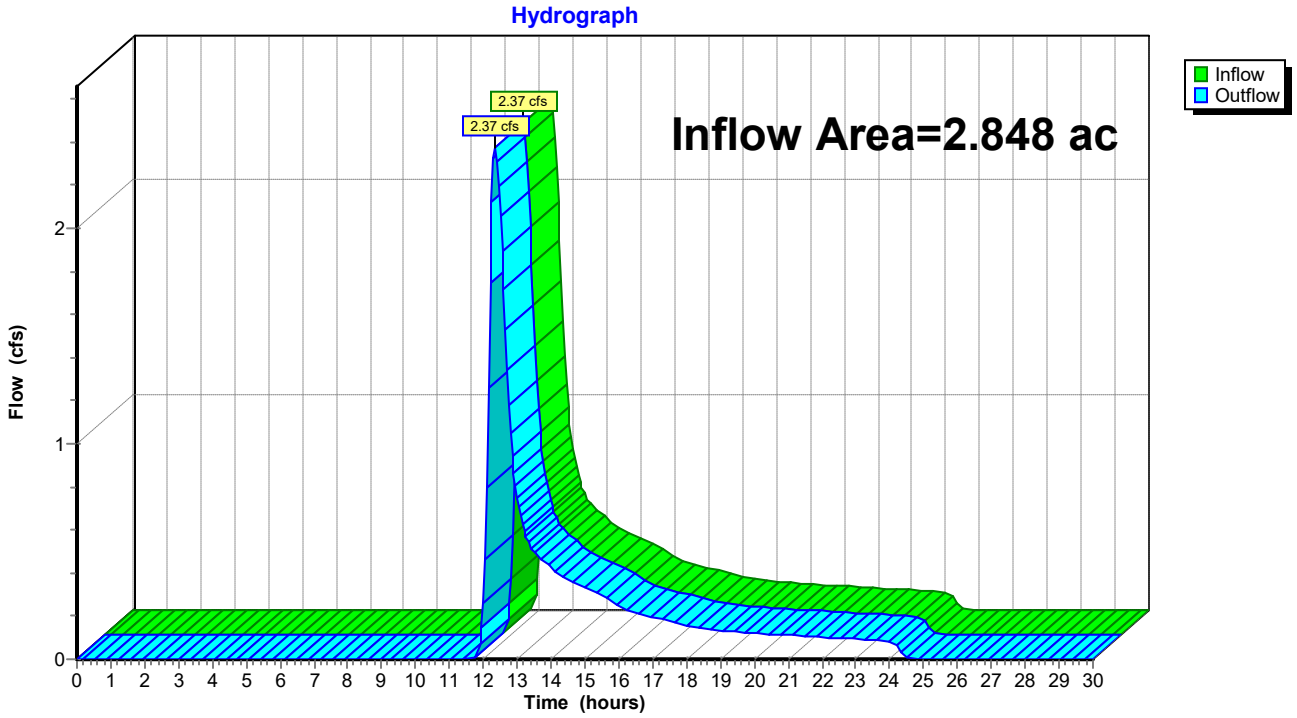
Summary for Reach DP14: DP4

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 2.848 ac, 0.00% Impervious, Inflow Depth = 1.32" for 100-Year event
Inflow = 2.37 cfs @ 12.35 hrs, Volume= 0.313 af
Outflow = 2.37 cfs @ 12.35 hrs, Volume= 0.313 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP14: DP4



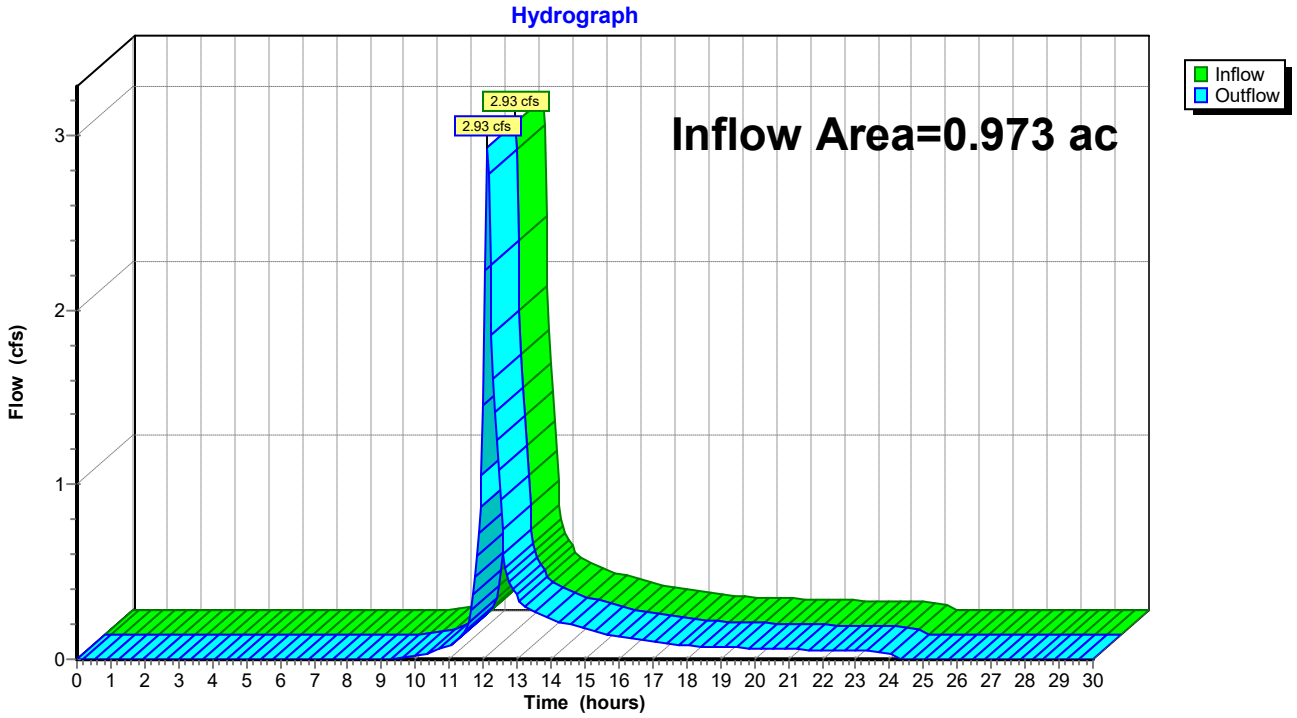
Summary for Reach DP15: DP15

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.973 ac, 15.50% Impervious, Inflow Depth = 2.82" for 100-Year event
Inflow = 2.93 cfs @ 12.12 hrs, Volume= 0.228 af
Outflow = 2.93 cfs @ 12.12 hrs, Volume= 0.228 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP15: DP15



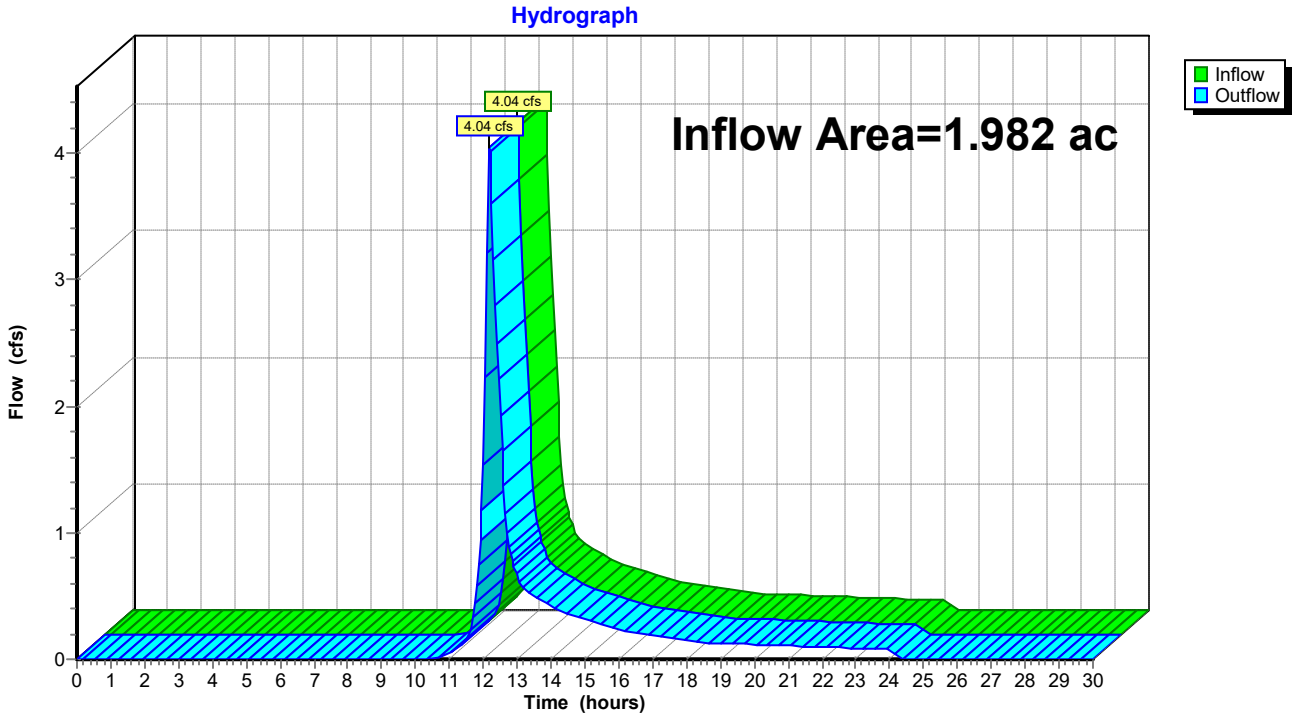
Summary for Reach DP16: DP16

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.982 ac, 6.47% Impervious, Inflow Depth = 2.26" for 100-Year event
Inflow = 4.04 cfs @ 12.18 hrs, Volume= 0.373 af
Outflow = 4.04 cfs @ 12.18 hrs, Volume= 0.373 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP16: DP16



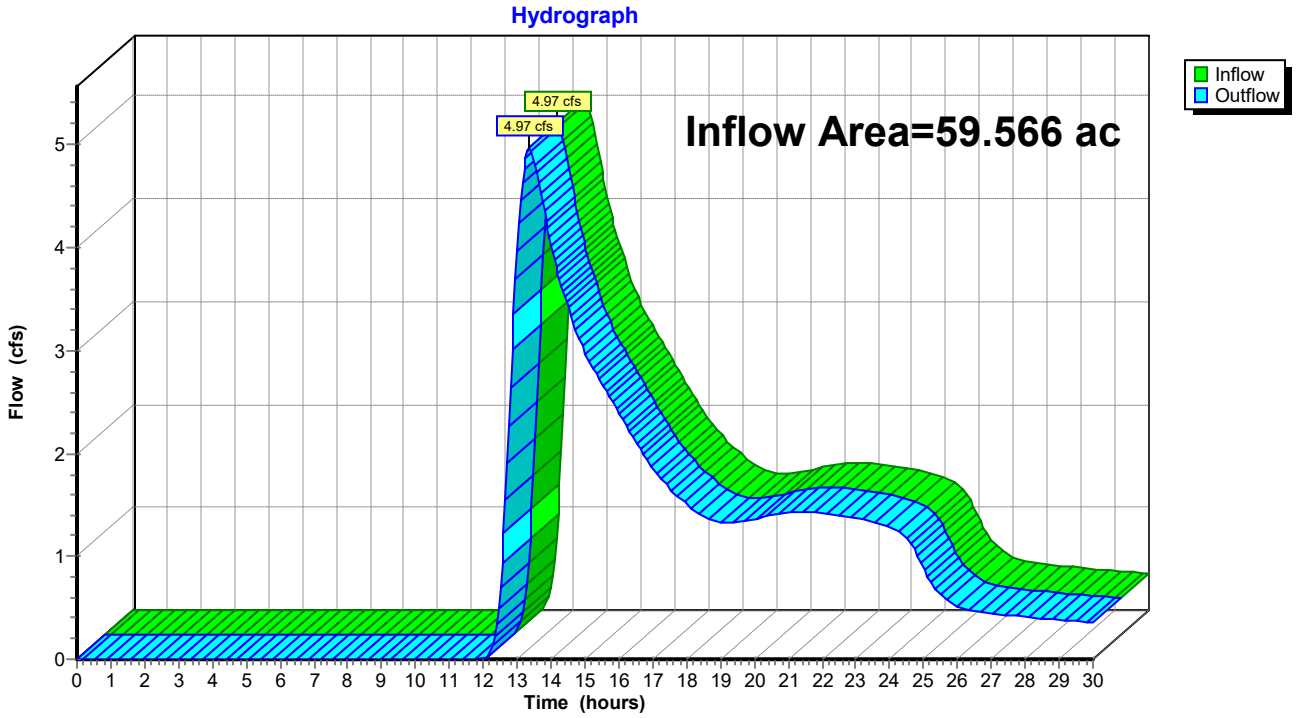
Summary for Reach DP2: DP#2

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 59.566 ac, 0.41% Impervious, Inflow Depth > 0.46" for 100-Year event
Inflow = 4.97 cfs @ 13.38 hrs, Volume= 2.272 af
Outflow = 4.97 cfs @ 13.38 hrs, Volume= 2.272 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP2: DP#2



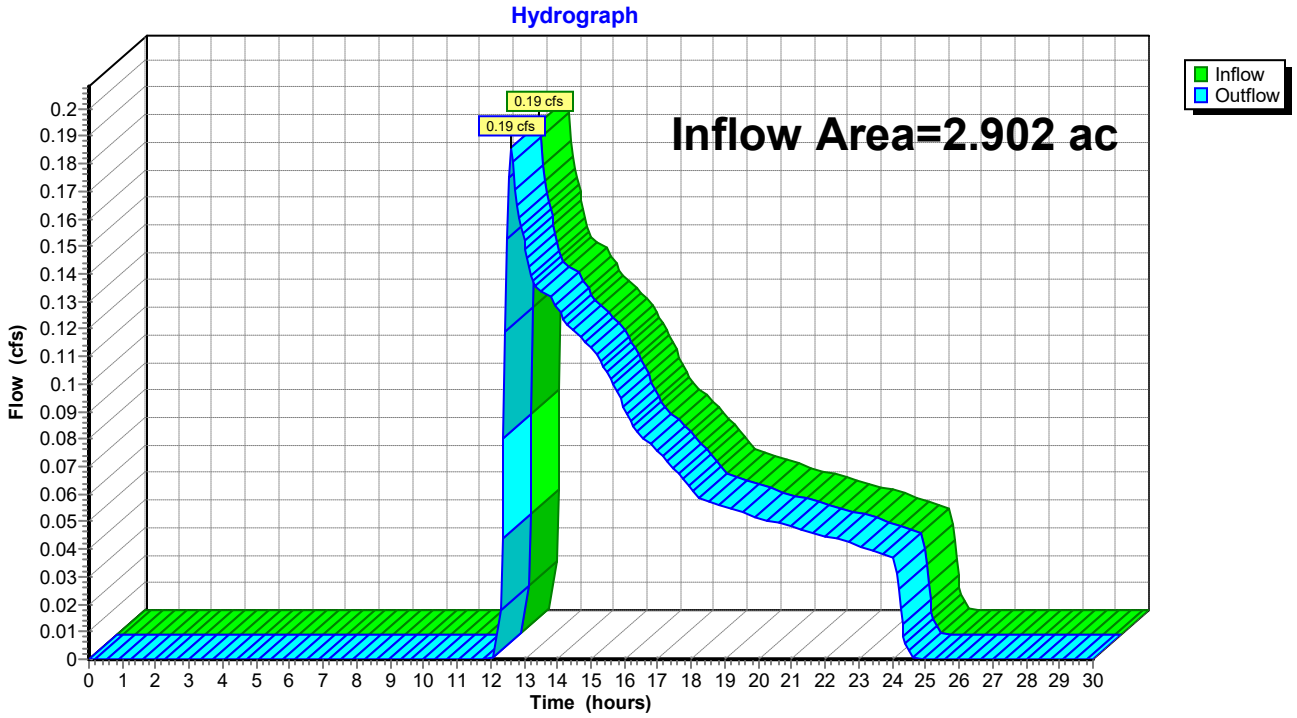
Summary for Reach DP3: DP#3

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 2.902 ac, 2.47% Impervious, Inflow Depth = 0.31" for 100-Year event
Inflow = 0.19 cfs @ 12.62 hrs, Volume= 0.075 af
Outflow = 0.19 cfs @ 12.62 hrs, Volume= 0.075 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP3: DP#3



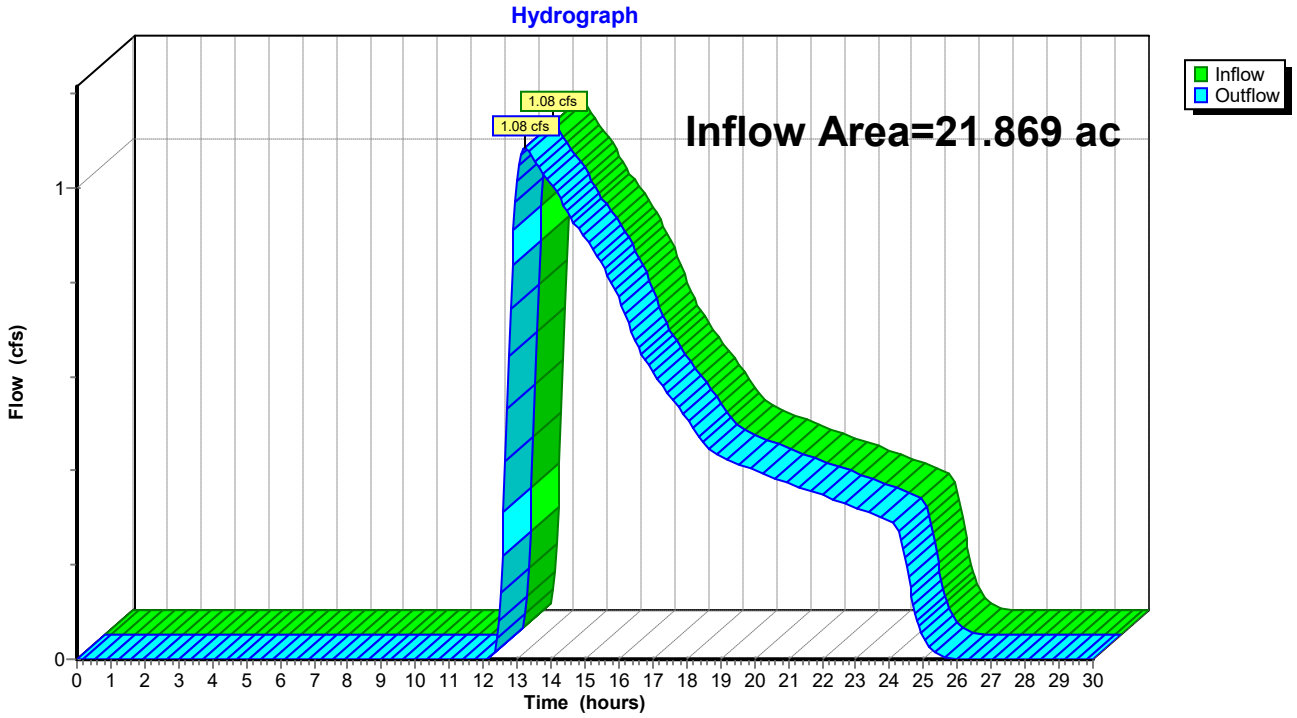
Summary for Reach WETLAND: .

[40] Hint: Not Described (Outflow=Inflow)

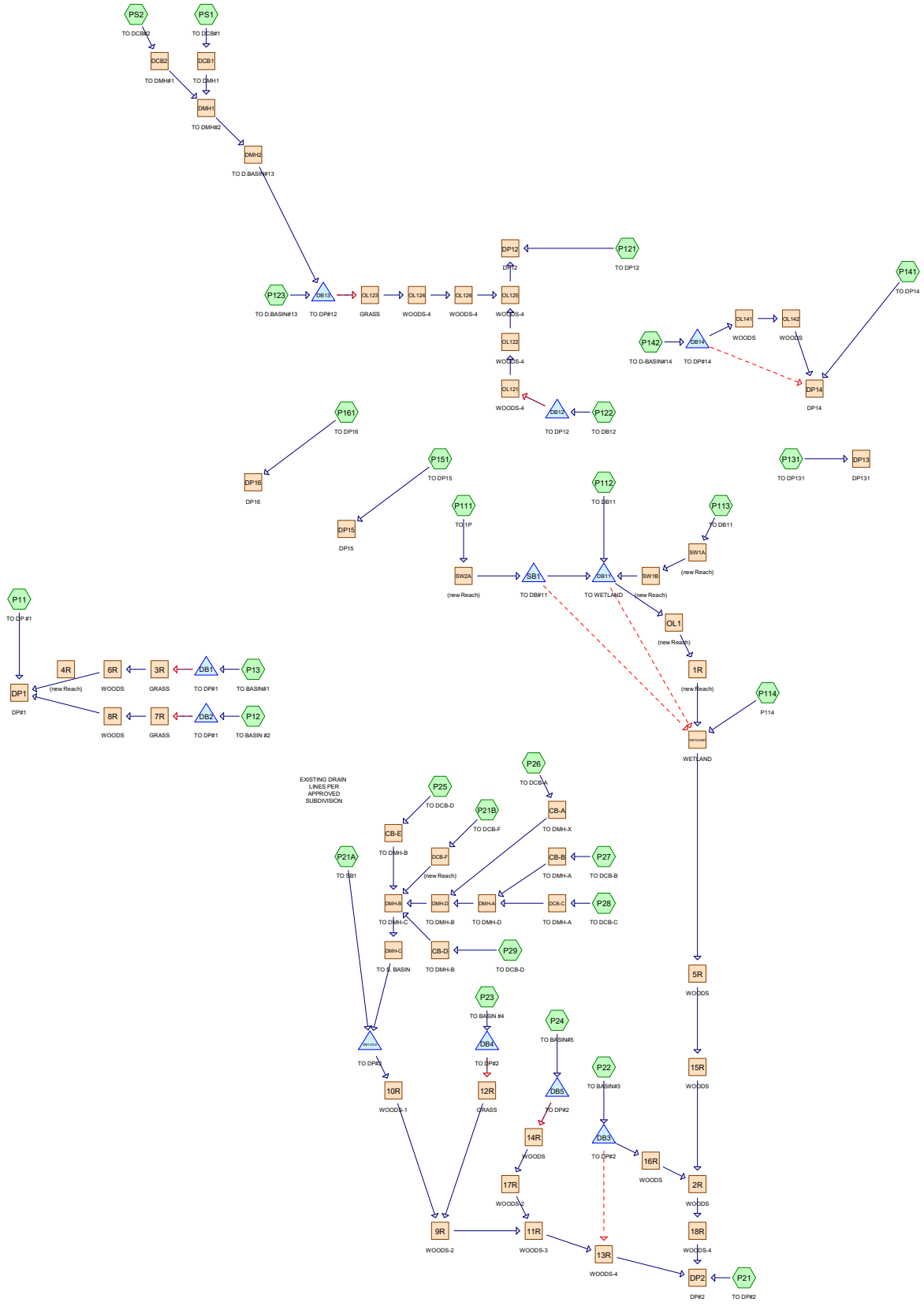
Inflow Area = 21.869 ac, 0.00% Impervious, Inflow Depth = 0.31" for 100-Year event
Inflow = 1.08 cfs @ 13.23 hrs, Volume= 0.567 af
Outflow = 1.08 cfs @ 13.23 hrs, Volume= 0.567 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach WETLAND: .



2.2
POST DEVELOPMENT CALCULATIONS



Routing Diagram for 2719-Boutlier Post-r2

Prepared by HANNIGAN ENGINEERING, INC., Printed 11/13/2018

HydroCAD® 10.00-22 s/n 00840 © 2018 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
38.519	39	>75% Grass cover, Good, HSG A (P11, P111, P112, P113, P114, P12, P121, P122, P123, P13, P131, P141, P142, P21, P21A, P21B, P22, P23, P24)
16.032	61	>75% Grass cover, Good, HSG B (P11, P111, P112, P113, P114, P121, P122, P123, P131, P141, P142, P151, P161, P21, P24, P26, P27, PS1, PS2)
4.550	74	>75% Grass cover, Good, HSG C (P11, P12, P13)
2.039	30	Brush, Good, HSG A (P11, P131)
0.954	48	Brush, Good, HSG B (P131)
0.070	65	Brush, Good, HSG C (P11)
1.064	76	Gravel roads, HSG A (P12, P13, P21, P21A, P22, P24)
0.076	89	Gravel roads, HSG C (P13)
1.087	98	Paved parking, HSG A (P111, P112, P21, P21B, P23, P24, P25, P26, P27, P28, P29)
0.604	98	Paved parking, HSG B (P11, P111, P151, P161, PS1, PS2)
44.110	30	Woods, Good, HSG A (P11, P111, P114, P121, P122, P131, P141, P21)
13.582	55	Woods, Good, HSG B (P114, P121, P123, P131, P141, P151, P161, P21)
3.438	70	Woods, Good, HSG C (P11, P114, P21)
2.888	77	Woods, Good, HSG D (P11)
129.013	**44**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
86.818	HSG A	P11, P111, P112, P113, P114, P12, P121, P122, P123, P13, P131, P141, P142, P21, P21A, P21B, P22, P23, P24, P25, P26, P27, P28, P29
31.172	HSG B	P11, P111, P112, P113, P114, P121, P122, P123, P131, P141, P142, P151, P161, P21, P24, P26, P27, PS1, PS2
8.134	HSG C	P11, P114, P12, P13, P21
2.888	HSG D	P11
0.000	Other	
129.013		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
38.519	16.032	4.550	0.000	0.000	59.101	>75% Grass cover, Good	P11, P111, P112, P113, P114, P12, P121, P122, P123, P13, P131, P141, P142, P151, P161, P21, P21A, P21B, P22, P23, P24, P26, P27, PS1, PS2
2.039	0.954	0.070	0.000	0.000	3.064	Brush, Good	P11, P131
1.064	0.000	0.076	0.000	0.000	1.140	Gravel roads	P12, P13, P21, P21A, P22, P24
1.087	0.604	0.000	0.000	0.000	1.691	Paved parking	P11, P111, P112, P151, P161, P21, P21B, P23, P24, P25, P26, P27, P28,

Ground Covers (all nodes) (continued)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
44.110	13.582	3.438	2.888	0.000	64.018	Woods, Good	P11, P111, P114, P121, P122, P123, P131, P141, P151, P161, P21
86.818	**31.172**	**8.134**	**2.888**	**0.000**	**129.013**	**TOTAL AREA**	

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	4R	0.00	-0.50	100.0	0.0050	0.020	3.0	0.0	0.0
2	CB-A	901.29	901.15	14.4	0.0097	0.013	12.0	0.0	0.0
3	CB-B	902.74	902.49	24.9	0.0100	0.013	12.0	0.0	0.0
4	CB-D	899.93	899.73	14.4	0.0139	0.013	12.0	0.0	0.0
5	CB-E	902.00	899.73	71.7	0.0317	0.013	12.0	0.0	0.0
6	DCB-C	902.74	902.49	24.9	0.0100	0.013	12.0	0.0	0.0
7	DCB1	896.60	896.40	11.0	0.0182	0.013	12.0	0.0	0.0
8	DCB2	896.60	896.40	18.0	0.0111	0.013	12.0	0.0	0.0
9	DMH-A	902.39	901.15	248.2	0.0050	0.013	12.0	0.0	0.0
10	DMH-B	894.99	890.42	114.3	0.0400	0.013	12.0	0.0	0.0
11	DMH-C	888.30	879.00	189.0	0.0492	0.013	12.0	0.0	0.0
12	DMH-D	900.38	899.73	29.0	0.0224	0.013	12.0	0.0	0.0
13	DMH1	896.20	894.00	215.0	0.0102	0.013	12.0	0.0	0.0
14	DMH2	893.90	892.00	220.0	0.0086	0.013	12.0	0.0	0.0
15	DB1	815.40	815.00	42.0	0.0095	0.010	6.0	0.0	0.0
16	DB11	879.37	878.00	36.0	0.0381	0.013	12.0	0.0	0.0
17	DB12	882.10	881.50	28.0	0.0214	0.013	12.0	0.0	0.0
18	DB13	890.00	888.00	38.0	0.0526	0.013	12.0	0.0	0.0
19	DB14	900.30	898.00	50.0	0.0460	0.010	4.0	0.0	0.0
20	DB2	806.30	806.00	29.0	0.0103	0.012	12.0	0.0	0.0
21	DB3	854.50	854.00	46.0	0.0109	0.010	6.0	0.0	0.0
22	DB4	885.60	885.00	34.0	0.0176	0.010	6.0	0.0	0.0
23	DB5	864.50	864.00	26.0	0.0192	0.010	6.0	0.0	0.0
24	SB1	885.50	883.00	51.0	0.0490	0.013	12.0	0.0	0.0

Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment P11: TO DP #1 Runoff Area=841,459 sf 0.68% Impervious Runoff Depth=0.02"
Flow Length=1,169' Tc=14.9 min CN=45 Runoff=0.06 cfs 0.040 af

Subcatchment P111: TO 1P Runoff Area=494,552 sf 1.93% Impervious Runoff Depth=0.00"
Flow Length=1,156' Tc=23.2 min CN=41 Runoff=0.00 cfs 0.000 af

Subcatchment P112: TO DB11 Runoff Area=168,295 sf 0.17% Impervious Runoff Depth=0.00"
Flow Length=644' Tc=11.8 min CN=39 Runoff=0.00 cfs 0.000 af

Subcatchment P113: TO DB11 Runoff Area=110,958 sf 0.00% Impervious Runoff Depth=0.05"
Flow Length=350' Tc=11.3 min CN=47 Runoff=0.02 cfs 0.010 af

Subcatchment P114: P114 Runoff Area=242,907 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=635' Tc=27.8 min CN=36 Runoff=0.00 cfs 0.000 af

Subcatchment P12: TO BASIN #2 Runoff Area=253,045 sf 0.00% Impervious Runoff Depth=0.25"
Flow Length=915' Tc=9.8 min CN=57 Runoff=0.60 cfs 0.120 af

Subcatchment P121: TO DP12 Runoff Area=847,404 sf 0.00% Impervious Runoff Depth=0.02"
Flow Length=1,458' Tc=36.2 min CN=44 Runoff=0.04 cfs 0.032 af

Subcatchment P122: TO DB12 Runoff Area=311,821 sf 0.00% Impervious Runoff Depth=0.03"
Flow Length=577' Tc=10.5 min CN=46 Runoff=0.03 cfs 0.021 af

Subcatchment P123: TO D.BASIN#13 Runoff Area=121,880 sf 0.00% Impervious Runoff Depth=0.15"
Flow Length=460' Tc=8.4 min CN=53 Runoff=0.10 cfs 0.034 af

Subcatchment P13: TO BASIN#1 Runoff Area=92,916 sf 0.00% Impervious Runoff Depth=0.19"
Flow Length=853' Tc=7.5 min CN=55 Runoff=0.14 cfs 0.034 af

Subcatchment P131: TO DP131 Runoff Area=245,753 sf 0.00% Impervious Runoff Depth=0.15"
Flow Length=308' Tc=15.2 min CN=53 Runoff=0.18 cfs 0.068 af

Subcatchment P141: TO DP14 Runoff Area=72,092 sf 0.00% Impervious Runoff Depth=0.09"
Flow Length=626' Tc=19.4 min CN=50 Runoff=0.02 cfs 0.012 af

Subcatchment P142: TO D-BASIN#14 Runoff Area=51,980 sf 0.00% Impervious Runoff Depth=0.21"
Flow Length=75' Slope=0.0500 '/' Tc=5.6 min CN=56 Runoff=0.10 cfs 0.021 af

Subcatchment P151: TO DP15 Runoff Area=42,383 sf 10.17% Impervious Runoff Depth=0.48"
Flow Length=185' Tc=7.5 min CN=64 Runoff=0.36 cfs 0.039 af

Subcatchment P161: TO DP16 Runoff Area=60,411 sf 10.83% Impervious Runoff Depth=0.38"
Flow Length=635' Tc=20.5 min CN=61 Runoff=0.25 cfs 0.044 af

Subcatchment P21: TO DP#2 Runoff Area=1,361,392 sf 0.70% Impervious Runoff Depth=0.00"
Flow Length=2,645' Tc=74.2 min CN=38 Runoff=0.00 cfs 0.000 af

Subcatchment P21A: TO SB1 Runoff Area=55,508 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=325' Slope=0.0900 '/' Tc=5.3 min CN=40 Runoff=0.00 cfs 0.000 af

Subcatchment P21B: TO DCB-F Runoff Area=4,375 sf 49.10% Impervious Runoff Depth=0.63"
Flow Length=103' Tc=5.0 min CN=68 Runoff=0.06 cfs 0.005 af

Subcatchment P22: TO BASIN#3 Runoff Area=64,084 sf 0.00% Impervious Runoff Depth=0.01"
Flow Length=660' Tc=6.6 min CN=44 Runoff=0.00 cfs 0.002 af

Subcatchment P23: TO BASIN #4 Runoff Area=63,337 sf 3.28% Impervious Runoff Depth=0.00"
Flow Length=180' Tc=5.0 min CN=41 Runoff=0.00 cfs 0.000 af

Subcatchment P24: TO BASIN#5 Runoff Area=44,933 sf 3.16% Impervious Runoff Depth=0.01"
Flow Length=385' Tc=5.0 min CN=44 Runoff=0.00 cfs 0.001 af

Subcatchment P25: TO DCB-D Runoff Area=2,108 sf 100.00% Impervious Runoff Depth=2.77"
Tc=0.0 min CN=98 Runoff=0.16 cfs 0.011 af

Subcatchment P26: TO DCB-A Runoff Area=19,626 sf 43.07% Impervious Runoff Depth=1.07"
Tc=0.0 min CN=77 Runoff=0.63 cfs 0.040 af

Subcatchment P27: TO DCB-B Runoff Area=8,741 sf 47.12% Impervious Runoff Depth=1.15"
Flow Length=286' Tc=5.0 min CN=78 Runoff=0.27 cfs 0.019 af

Subcatchment P28: TO DCB-C Runoff Area=4,121 sf 100.00% Impervious Runoff Depth=2.77"
Flow Length=286' Tc=5.0 min CN=98 Runoff=0.28 cfs 0.022 af

Subcatchment P29: TO DCB-D Runoff Area=4,188 sf 100.00% Impervious Runoff Depth=2.77"
Flow Length=280' Tc=5.0 min CN=98 Runoff=0.28 cfs 0.022 af

Subcatchment PS1: TO DCB#1 Runoff Area=17,260 sf 26.33% Impervious Runoff Depth=0.75"
Flow Length=210' Tc=7.3 min CN=71 Runoff=0.29 cfs 0.025 af

Subcatchment PS2: TO DCB#2 Runoff Area=12,294 sf 37.25% Impervious Runoff Depth=0.95"
Flow Length=225' Tc=5.0 min CN=75 Runoff=0.30 cfs 0.022 af

Reach 1R: (new Reach) Avg. Flow Depth=0.00' Max Vel=0.02 fps Inflow=0.01 cfs 0.009 af
n=0.400 L=268.0' S=0.0149 '/' Capacity=92.37 cfs Outflow=0.01 cfs 0.005 af

Reach 2R: WOODS Avg. Flow Depth=0.00' Max Vel=0.02 fps Inflow=0.00 cfs 0.001 af
n=0.400 L=429.0' S=0.0228 '/' Capacity=35.67 cfs Outflow=0.00 cfs 0.000 af

Reach 3R: GRASS Avg. Flow Depth=0.01' Max Vel=0.04 fps Inflow=0.04 cfs 0.034 af
n=0.240 L=14.0' S=0.0357 '/' Capacity=74.34 cfs Outflow=0.04 cfs 0.034 af

Reach 4R: (new Reach) Avg. Flow Depth=0.00' Max Vel=0.00 fps
3.0" Round Pipe n=0.020 L=100.0' S=0.0050 '/' Capacity=0.04 cfs Outflow=0.00 cfs 0.000 af

Reach 5R: WOODS Avg. Flow Depth=0.00' Max Vel=0.03 fps Inflow=0.01 cfs 0.005 af
n=0.400 L=75.0' S=0.0800 '/' Capacity=66.76 cfs Outflow=0.01 cfs 0.004 af

Reach 6R: WOODS Avg. Flow Depth=0.01' Max Vel=0.03 fps Inflow=0.04 cfs 0.034 af
n=0.400 L=259.0' S=0.0405 '/' Capacity=47.52 cfs Outflow=0.04 cfs 0.030 af

Reach 7R: GRASS Avg. Flow Depth=0.01' Max Vel=0.03 fps Inflow=0.04 cfs 0.059 af
n=0.240 L=20.0' S=0.0250 '/' Capacity=62.20 cfs Outflow=0.04 cfs 0.058 af

Reach 8R: WOODS Avg. Flow Depth=0.01' Max Vel=0.02 fps Inflow=0.04 cfs 0.058 af
n=0.400 L=222.0' S=0.0090 '/' Capacity=22.40 cfs Outflow=0.04 cfs 0.035 af

Reach 9R: WOODS-2 Avg. Flow Depth=0.00' Max Vel=0.01 fps Inflow=0.02 cfs 0.010 af
n=0.400 L=679.0' S=0.0147 '/' Capacity=28.64 cfs Outflow=0.00 cfs 0.000 af

Reach 10R: WOODS-1 Avg. Flow Depth=0.00' Max Vel=0.02 fps Inflow=0.04 cfs 0.018 af
n=0.400 L=400.0' S=0.0400 '/' Capacity=47.20 cfs Outflow=0.02 cfs 0.010 af

Reach 11R: WOODS-3 Avg. Flow Depth=0.00' Max Vel=0.01 fps Inflow=0.00 cfs 0.000 af
n=0.400 L=577.0' S=0.0035 '/' Capacity=13.90 cfs Outflow=0.00 cfs 0.000 af

Reach 12R: GRASS Avg. Flow Depth=0.00' Max Vel=0.06 fps Inflow=0.00 cfs 0.000 af
n=0.240 L=170.0' S=0.1000 '/' Capacity=124.39 cfs Outflow=0.00 cfs 0.000 af

Reach 13R: WOODS-4 Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.400 L=643.0' S=0.0124 '/' Capacity=26.33 cfs Outflow=0.00 cfs 0.000 af

Reach 14R: WOODS Avg. Flow Depth=0.00' Max Vel=0.03 fps Inflow=0.00 cfs 0.001 af
n=0.400 L=142.0' S=0.0563 '/' Capacity=56.02 cfs Outflow=0.00 cfs 0.001 af

Reach 15R: WOODS Avg. Flow Depth=0.00' Max Vel=0.02 fps Inflow=0.01 cfs 0.004 af
n=0.400 L=429.0' S=0.0284 '/' Capacity=39.80 cfs Outflow=0.00 cfs 0.000 af

Reach 16R: WOODS Avg. Flow Depth=0.00' Max Vel=0.02 fps Inflow=0.00 cfs 0.002 af
n=0.400 L=185.0' S=0.0227 '/' Capacity=35.56 cfs Outflow=0.00 cfs 0.001 af

Reach 17R: WOODS-2 Avg. Flow Depth=0.00' Max Vel=0.01 fps Inflow=0.00 cfs 0.001 af
n=0.400 L=474.0' S=0.0169 '/' Capacity=30.66 cfs Outflow=0.00 cfs 0.000 af

Reach 18R: WOODS-4 Avg. Flow Depth=0.00' Max Vel=0.01 fps Inflow=0.00 cfs 0.000 af
n=0.400 L=339.0' S=0.0059 '/' Capacity=18.13 cfs Outflow=0.00 cfs 0.000 af

Reach CB-A: TO DMH-X Avg. Flow Depth=0.29' Max Vel=3.37 fps Inflow=0.63 cfs 0.040 af
12.0" Round Pipe n=0.013 L=14.4' S=0.0097 '/' Capacity=3.51 cfs Outflow=0.62 cfs 0.040 af

Reach CB-B: TO DMH-A Avg. Flow Depth=0.19' Max Vel=2.66 fps Inflow=0.27 cfs 0.019 af
12.0" Round Pipe n=0.013 L=24.9' S=0.0100 '/' Capacity=3.57 cfs Outflow=0.26 cfs 0.019 af

Reach CB-D: TO DMH-B Avg. Flow Depth=0.18' Max Vel=3.01 fps Inflow=0.28 cfs 0.022 af
12.0" Round Pipe n=0.013 L=14.4' S=0.0139 '/' Capacity=4.20 cfs Outflow=0.28 cfs 0.022 af

Reach CB-E: TO DMH-B Avg. Flow Depth=0.11' Max Vel=3.43 fps Inflow=0.16 cfs 0.011 af
12.0" Round Pipe n=0.013 L=71.7' S=0.0317 '/' Capacity=6.34 cfs Outflow=0.16 cfs 0.011 af

Reach DCB-C: TO DMH-A Avg. Flow Depth=0.19' Max Vel=2.67 fps Inflow=0.28 cfs 0.022 af
12.0" Round Pipe n=0.013 L=24.9' S=0.0100 '/' Capacity=3.57 cfs Outflow=0.27 cfs 0.022 af

Reach DCB-F: (new Reach) Inflow=0.06 cfs 0.005 af
Outflow=0.06 cfs 0.005 af

Reach DCB1: TO DMH1 Avg. Flow Depth=0.17' Max Vel=3.34 fps Inflow=0.29 cfs 0.025 af
12.0" Round Pipe n=0.013 L=11.0' S=0.0182 '/' Capacity=4.80 cfs Outflow=0.29 cfs 0.025 af

Reach DCB2: TO DMH#1 Avg. Flow Depth=0.19' Max Vel=2.85 fps Inflow=0.30 cfs 0.022 af
12.0" Round Pipe n=0.013 L=18.0' S=0.0111 '/' Capacity=3.76 cfs Outflow=0.30 cfs 0.022 af

Reach DMH-A: TO DMH-D Avg. Flow Depth=0.31' Max Vel=2.53 fps Inflow=0.54 cfs 0.041 af
12.0" Round Pipe n=0.013 L=248.2' S=0.0050 '/' Capacity=2.52 cfs Outflow=0.50 cfs 0.041 af

Reach DMH-B: TO DMH-C Avg. Flow Depth=0.29' Max Vel=6.96 fps Inflow=1.34 cfs 0.120 af
12.0" Round Pipe n=0.013 L=114.3' S=0.0400 '/' Capacity=7.12 cfs Outflow=1.33 cfs 0.120 af

Reach DMH-C: TO S. BASIN Avg. Flow Depth=0.28' Max Vel=7.48 fps Inflow=1.33 cfs 0.120 af
12.0" Round Pipe n=0.013 L=189.0' S=0.0492 '/' Capacity=7.90 cfs Outflow=1.32 cfs 0.120 af

Reach DMH-D: TO DMH-B Avg. Flow Depth=0.28' Max Vel=5.02 fps Inflow=0.88 cfs 0.081 af
12.0" Round Pipe n=0.013 L=29.0' S=0.0224 '/' Capacity=5.33 cfs Outflow=0.88 cfs 0.081 af

Reach DMH1: TO DMH#2 Avg. Flow Depth=0.27' Max Vel=3.33 fps Inflow=0.58 cfs 0.047 af
12.0" Round Pipe n=0.013 L=215.0' S=0.0102 '/' Capacity=3.60 cfs Outflow=0.55 cfs 0.047 af

Reach DMH2: TO D.BASIN#13 Avg. Flow Depth=0.27' Max Vel=3.11 fps Inflow=0.55 cfs 0.047 af
12.0" Round Pipe n=0.013 L=220.0' S=0.0086 '/' Capacity=3.31 cfs Outflow=0.52 cfs 0.047 af

Reach DP1: DP#1 Inflow=0.12 cfs 0.105 af
Outflow=0.12 cfs 0.105 af

Reach DP12: DP12 Inflow=0.04 cfs 0.042 af
Outflow=0.04 cfs 0.042 af

Reach DP13: DP131 Inflow=0.18 cfs 0.068 af
Outflow=0.18 cfs 0.068 af

Reach DP14: DP14 Inflow=0.04 cfs 0.030 af
Outflow=0.04 cfs 0.030 af

Reach DP15: DP15 Inflow=0.36 cfs 0.039 af
Outflow=0.36 cfs 0.039 af

Reach DP16: DP16 Inflow=0.25 cfs 0.044 af
Outflow=0.25 cfs 0.044 af

Reach DP2: DP#2 Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Reach OL1: (new Reach) Avg. Flow Depth=0.00' Max Vel=0.10 fps Inflow=0.01 cfs 0.009 af
n=0.240 L=50.0' S=0.1200 '/' Capacity=222.51 cfs Outflow=0.01 cfs 0.009 af

Reach OL121: WOODS-4 Avg. Flow Depth=0.00' Max Vel=0.04 fps Inflow=0.03 cfs 0.021 af
n=0.400 L=40.0' S=0.1375 '/' Capacity=65.83 cfs Outflow=0.02 cfs 0.020 af

Reach OL122: WOODS-4 Avg. Flow Depth=0.01' Max Vel=0.01 fps Inflow=0.02 cfs 0.020 af
n=0.400 L=251.0' S=0.0060 '/' Capacity=18.25 cfs Outflow=0.02 cfs 0.008 af

Reach OL123: GRASS Avg. Flow Depth=0.01' Max Vel=0.07 fps Inflow=0.10 cfs 0.053 af
n=0.410 L=44.0' S=0.1364 '/' Capacity=63.96 cfs Outflow=0.10 cfs 0.053 af

Reach OL124: WOODS-4 Avg. Flow Depth=0.01' Max Vel=0.06 fps Inflow=0.10 cfs 0.053 af
n=0.400 L=64.0' S=0.0781 '/' Capacity=49.62 cfs Outflow=0.10 cfs 0.053 af

Reach OL125: WOODS-4 Avg. Flow Depth=0.01' Max Vel=0.02 fps Inflow=0.07 cfs 0.054 af
n=0.400 L=367.0' S=0.0068 '/' Capacity=19.48 cfs Outflow=0.04 cfs 0.010 af

Reach OL126: WOODS-4 Avg. Flow Depth=0.02' Max Vel=0.02 fps Inflow=0.10 cfs 0.053 af
n=0.400 L=185.0' S=0.0081 '/' Capacity=21.25 cfs Outflow=0.07 cfs 0.046 af

Reach OL141: WOODS Avg. Flow Depth=0.00' Max Vel=0.03 fps Inflow=0.04 cfs 0.021 af
n=0.400 L=261.0' S=0.0996 '/' Capacity=23.36 cfs Outflow=0.03 cfs 0.020 af

Reach OL142: WOODS Avg. Flow Depth=0.01' Max Vel=0.03 fps Inflow=0.03 cfs 0.020 af
n=0.400 L=116.0' S=0.0517 '/' Capacity=16.83 cfs Outflow=0.03 cfs 0.018 af

Reach SW1A: (new Reach) Avg. Flow Depth=0.01' Max Vel=0.41 fps Inflow=0.02 cfs 0.010 af
n=0.040 L=300.0' S=0.0225 '/' Capacity=125.94 cfs Outflow=0.02 cfs 0.010 af

Reach SW1B: (new Reach) Avg. Flow Depth=0.01' Max Vel=0.74 fps Inflow=0.02 cfs 0.010 af
n=0.040 L=255.0' S=0.0749 '/' Capacity=229.79 cfs Outflow=0.02 cfs 0.010 af

Reach SW2A: (new Reach) Avg. Flow Depth=0.00' Max Vel=0.35 fps Inflow=0.00 cfs 0.000 af
n=0.040 L=118.0' S=0.0169 '/' Capacity=109.31 cfs Outflow=0.00 cfs 0.000 af

Reach WETLAND: WETLAND Inflow=0.01 cfs 0.005 af
Outflow=0.01 cfs 0.005 af

Pond DB1: TO DP#1 Peak Elev=817.10' Storage=335 cf Inflow=0.14 cfs 0.034 af
Primary=0.04 cfs 0.034 af Secondary=0.00 cfs 0.000 af Outflow=0.04 cfs 0.034 af

Pond DB11: TO WETLAND Peak Elev=882.01' Storage=189 cf Inflow=0.02 cfs 0.010 af
Primary=0.01 cfs 0.009 af Secondary=0.00 cfs 0.000 af Outflow=0.01 cfs 0.009 af

Pond DB12: TO DP12 Peak Elev=884.04' Storage=152 cf Inflow=0.03 cfs 0.021 af
Primary=0.03 cfs 0.021 af Secondary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.021 af

Pond DB13: TO DP#12 Peak Elev=892.59' Storage=1,464 cf Inflow=0.53 cfs 0.081 af
Primary=0.10 cfs 0.053 af Secondary=0.00 cfs 0.000 af Outflow=0.10 cfs 0.053 af

Pond DB14: TO DP#14 Peak Elev=902.06' Storage=132 cf Inflow=0.10 cfs 0.021 af
Primary=0.04 cfs 0.021 af Secondary=0.00 cfs 0.000 af Outflow=0.04 cfs 0.021 af

Pond DB2: TO DP#1 Peak Elev=807.90' Storage=3,506 cf Inflow=0.60 cfs 0.120 af
Primary=0.04 cfs 0.059 af Secondary=0.00 cfs 0.000 af Outflow=0.04 cfs 0.059 af

Pond DB3: TO DP#2 Peak Elev=856.00' Storage=1 cf Inflow=0.00 cfs 0.002 af
Primary=0.00 cfs 0.002 af Secondary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.002 af

Pond DB4: TO DP#2 Peak Elev=888.00' Storage=0 cf Inflow=0.00 cfs 0.000 af
Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af

Pond DB5: TO DP#2 Peak Elev=866.00' Storage=0 cf Inflow=0.00 cfs 0.001 af
Primary=0.00 cfs 0.001 af Secondary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.001 af

Pond SB1: TO DB#11 Peak Elev=885.01' Storage=15 cf Inflow=0.00 cfs 0.000 af
Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af

Pond SB1-OLD: TO DP#2 Peak Elev=880.51' Storage=4,480 cf Inflow=1.32 cfs 0.120 af
Outflow=0.04 cfs 0.018 af

Total Runoff Area = 129.013 ac Runoff Volume = 0.645 af Average Runoff Depth = 0.06"
98.69% Pervious = 127.322 ac 1.31% Impervious = 1.691 ac

Summary for Subcatchment P11: TO DP #1

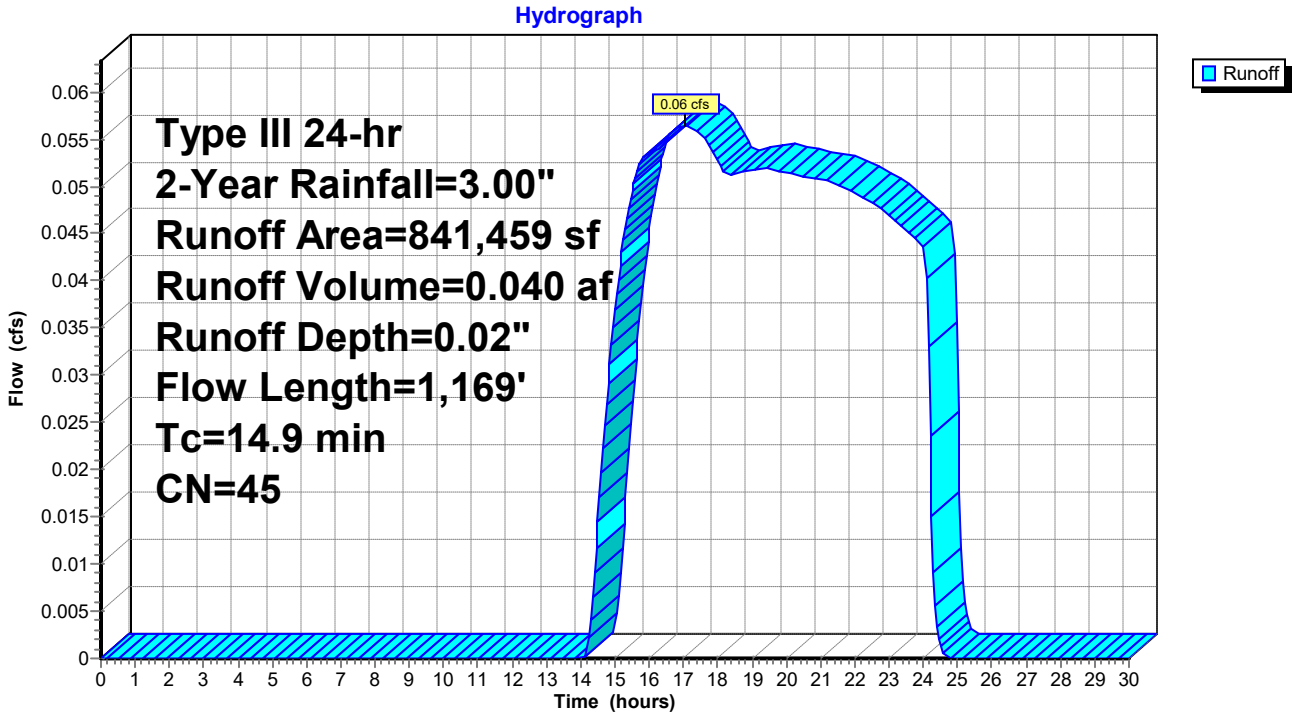
Runoff = 0.06 cfs @ 17.05 hrs, Volume= 0.040 af, Depth= 0.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.00"

Area (sf)	CN	Description
56,851	39	>75% Grass cover, Good, HSG A
81,519	30	Brush, Good, HSG A
427,679	30	Woods, Good, HSG A
45,535	74	>75% Grass cover, Good, HSG C
3,070	65	Brush, Good, HSG C
88,515	70	Woods, Good, HSG C
125,807	77	Woods, Good, HSG D
5,701	98	Paved parking, HSG B
6,782	61	>75% Grass cover, Good, HSG B
841,459	45	Weighted Average
835,758		99.32% Pervious Area
5,701		0.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.5	75	0.0830	0.27		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
1.3	361	0.0830	4.64		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
3.9	375	0.1010	1.59		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.4	144	0.1100	1.66		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.8	214	0.0350	0.94		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
14.9	1,169	Total			

Subcatchment P11: TO DP #1



Summary for Subcatchment P111: TO 1P

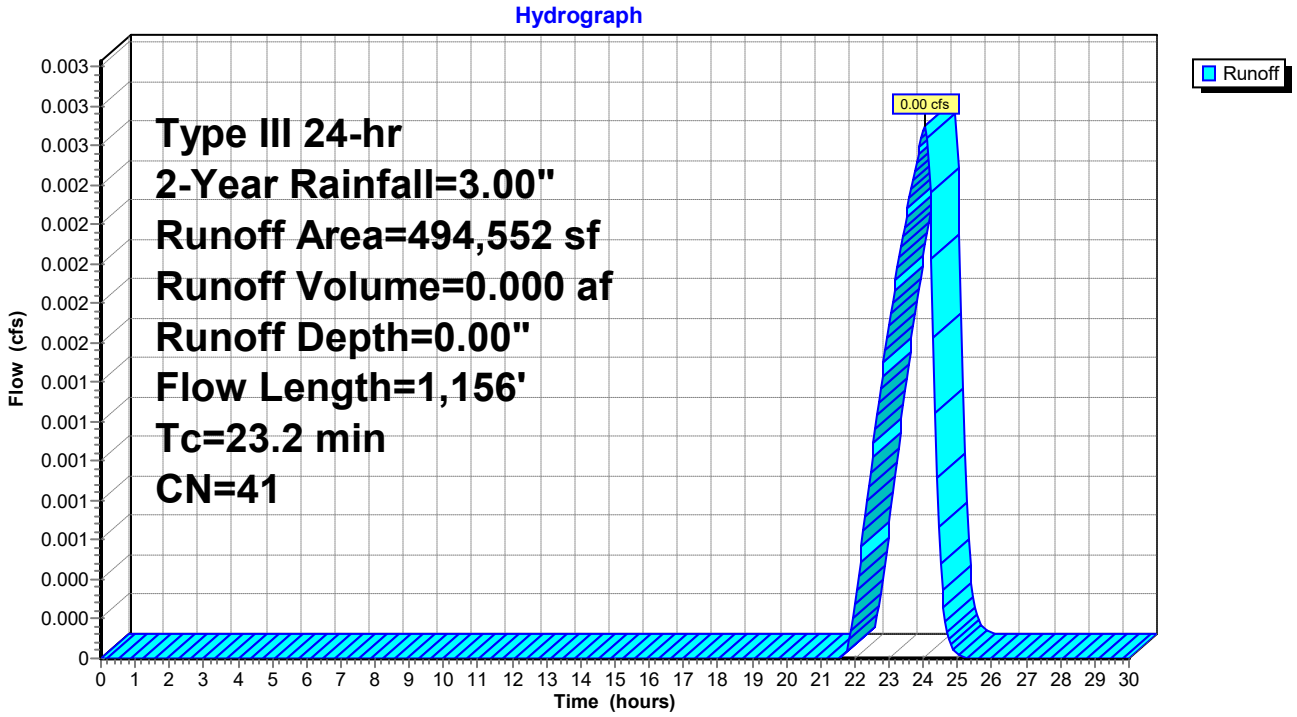
Runoff = 0.00 cfs @ 24.06 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.00"

Area (sf)	CN	Description
267,760	39	>75% Grass cover, Good, HSG A
146,825	30	Woods, Good, HSG A
8,905	98	Paved parking, HSG A
70,418	61	>75% Grass cover, Good, HSG B
644	98	Paved parking, HSG B
494,552	41	Weighted Average
485,003		98.07% Pervious Area
9,549		1.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	75	0.0480	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
4.2	245	0.0380	0.97		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.7	167	0.1080	1.64		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.6	113	0.0530	1.15		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.0	489	0.0290	2.74		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.2	50	0.0400	4.06		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	17	0.0590	3.91		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
23.2	1,156	Total			

Subcatchment P111: TO 1P



Summary for Subcatchment P112: TO DB11

[45] Hint: Runoff=Zero

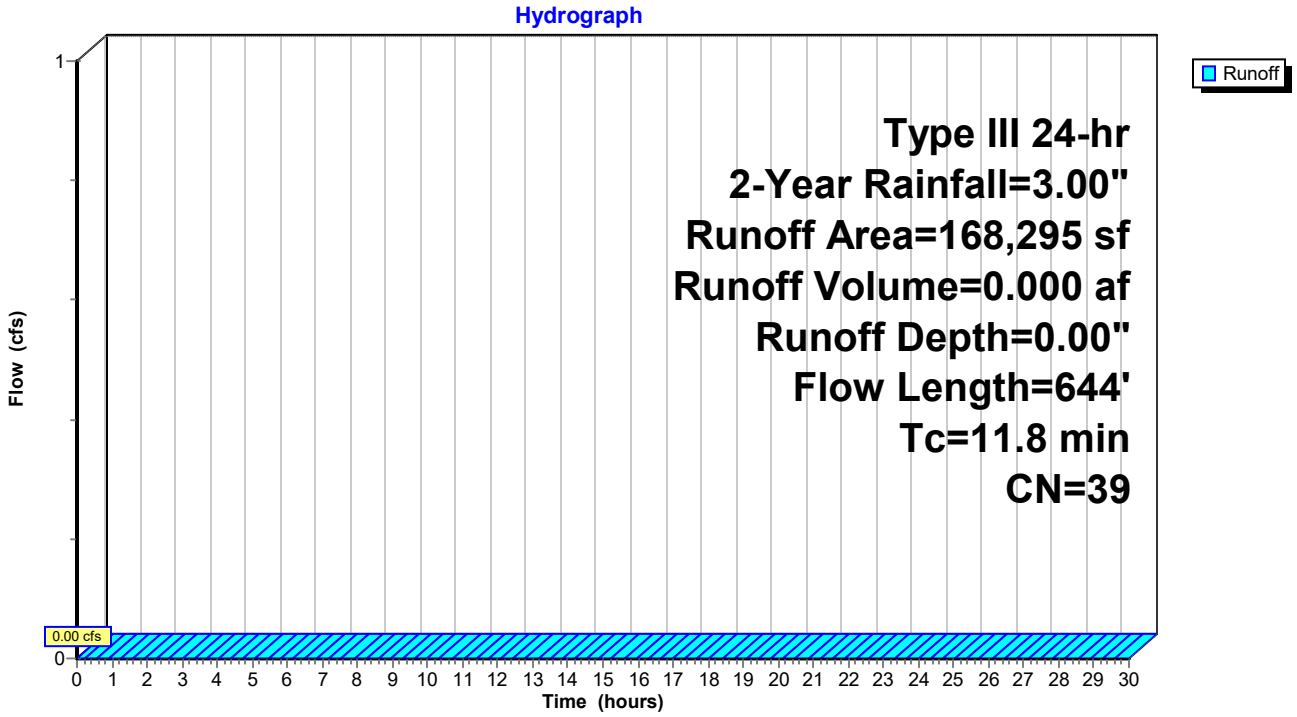
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.00"

Area (sf)	CN	Description
167,914	39	>75% Grass cover, Good, HSG A
281	98	Paved parking, HSG A
100	61	>75% Grass cover, Good, HSG B
168,295	39	Weighted Average
168,014		99.83% Pervious Area
281		0.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	75	0.0150	0.14		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.5	60	0.0150	1.97		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
2.3	491	0.0480	3.53		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.0	18	0.4440	10.73		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
11.8	644	Total			

Subcatchment P112: TO DB11



Summary for Subcatchment P113: TO DB11

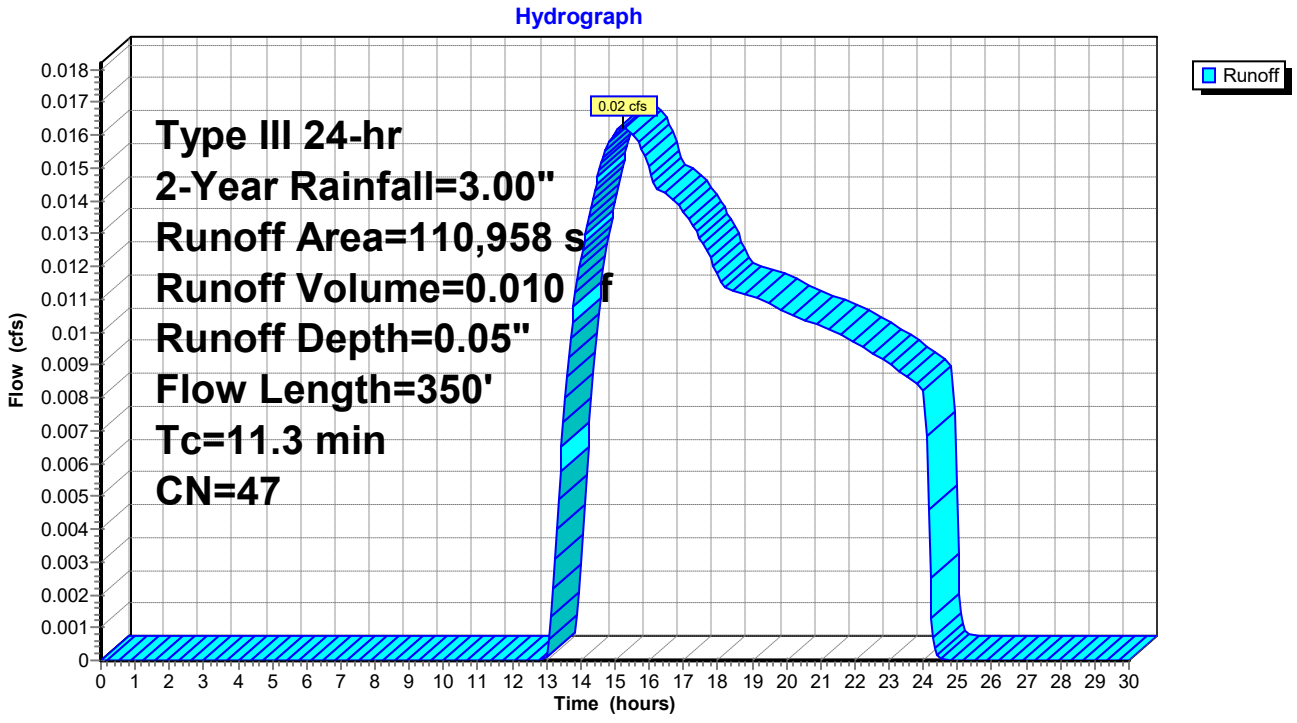
Runoff = 0.02 cfs @ 15.25 hrs, Volume= 0.010 af, Depth= 0.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.00"

Area (sf)	CN	Description
69,459	39	>75% Grass cover, Good, HSG A
41,499	61	>75% Grass cover, Good, HSG B
110,958	47	Weighted Average
110,958		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	75	0.0130	0.13		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.7	80	0.0130	1.84		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.0	195	0.0400	3.22		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
11.3	350	Total			

Subcatchment P113: TO DB11



Summary for Subcatchment P114: P114

[45] Hint: Runoff=Zero

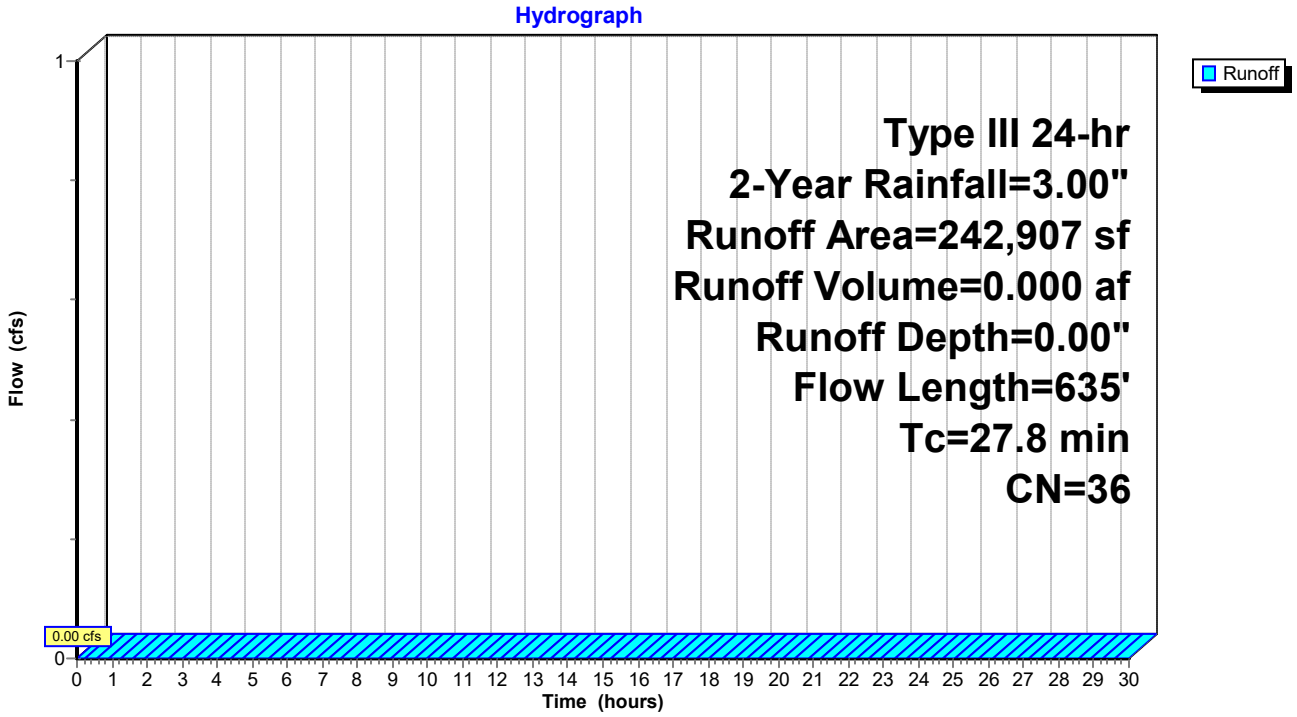
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.00"

Area (sf)	CN	Description
63,004	39	>75% Grass cover, Good, HSG A
157,080	30	Woods, Good, HSG A
1,859	61	>75% Grass cover, Good, HSG B
603	55	Woods, Good, HSG B
20,361	70	Woods, Good, HSG C
242,907	36	Weighted Average
242,907		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	75	0.0130	0.13		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.0	5	0.0130	1.84		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.1	30	0.0670	4.17		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.4	30	0.0670	1.29		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
4.5	244	0.0330	0.91		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
13.2	251	0.0040	0.32		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
27.8	635	Total			

Subcatchment P114: P114



Summary for Subcatchment P12: TO BASIN #2

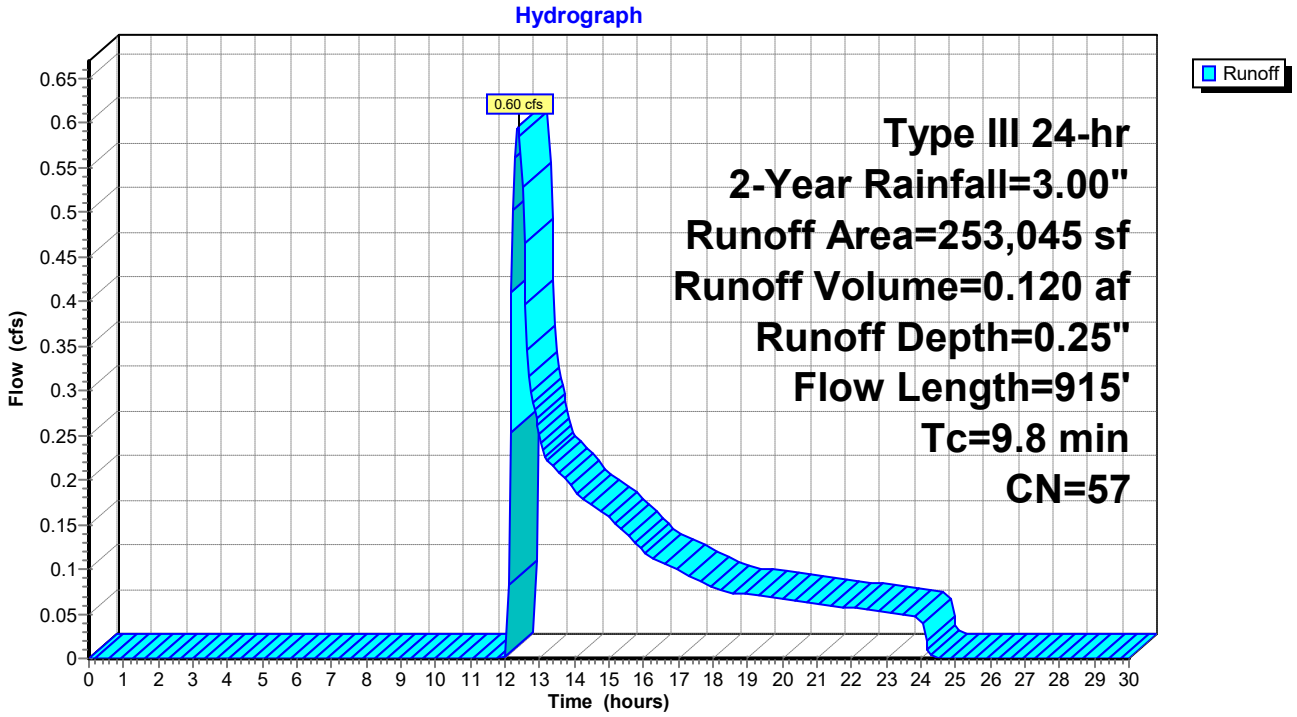
Runoff = 0.60 cfs @ 12.38 hrs, Volume= 0.120 af, Depth= 0.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.00"

Area (sf)	CN	Description
122,483	39	>75% Grass cover, Good, HSG A
1,193	76	Gravel roads, HSG A
129,369	74	>75% Grass cover, Good, HSG C
253,045	57	Weighted Average
253,045		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1	75	0.0690	0.18		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
0.0	12	0.0690	4.23		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.7	208	0.0860	4.72		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.0	18	0.3300	9.25		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.1	14	0.0100	1.61		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.4	77	0.0400	3.22		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.7	202	0.1000	5.09		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.8	309	0.1600	6.44		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
9.8	915	Total			

Subcatchment P12: TO BASIN #2



Summary for Subcatchment P121: TO DP12

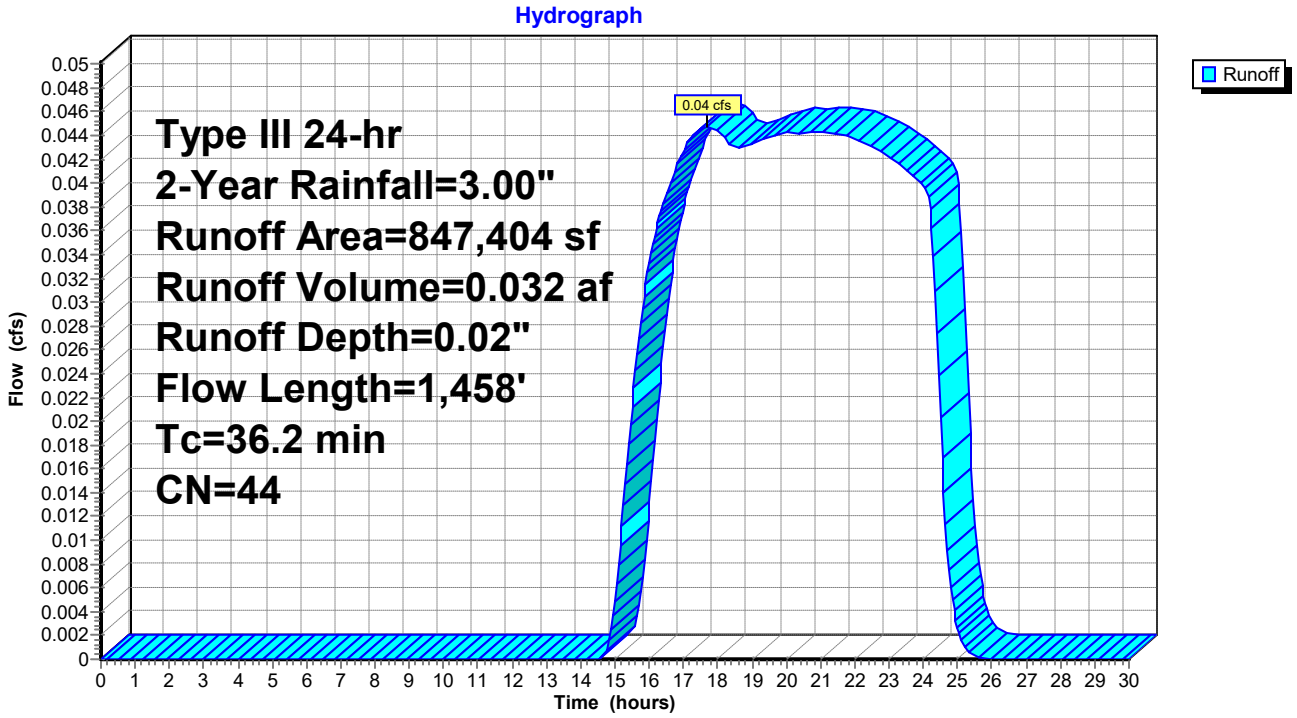
Runoff = 0.04 cfs @ 17.66 hrs, Volume= 0.032 af, Depth= 0.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.00"

Area (sf)	CN	Description
122,267	39	>75% Grass cover, Good, HSG A
308,952	30	Woods, Good, HSG A
129,820	61	>75% Grass cover, Good, HSG B
286,365	55	Woods, Good, HSG B
847,404	44	Weighted Average
847,404		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	75	0.0500	0.22		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
1.1	242	0.0500	3.60		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
8.7	601	0.0530	1.15		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
20.8	540	0.0075	0.43		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
36.2	1,458	Total			

Subcatchment P121: TO DP12



Summary for Subcatchment P122: TO DB12

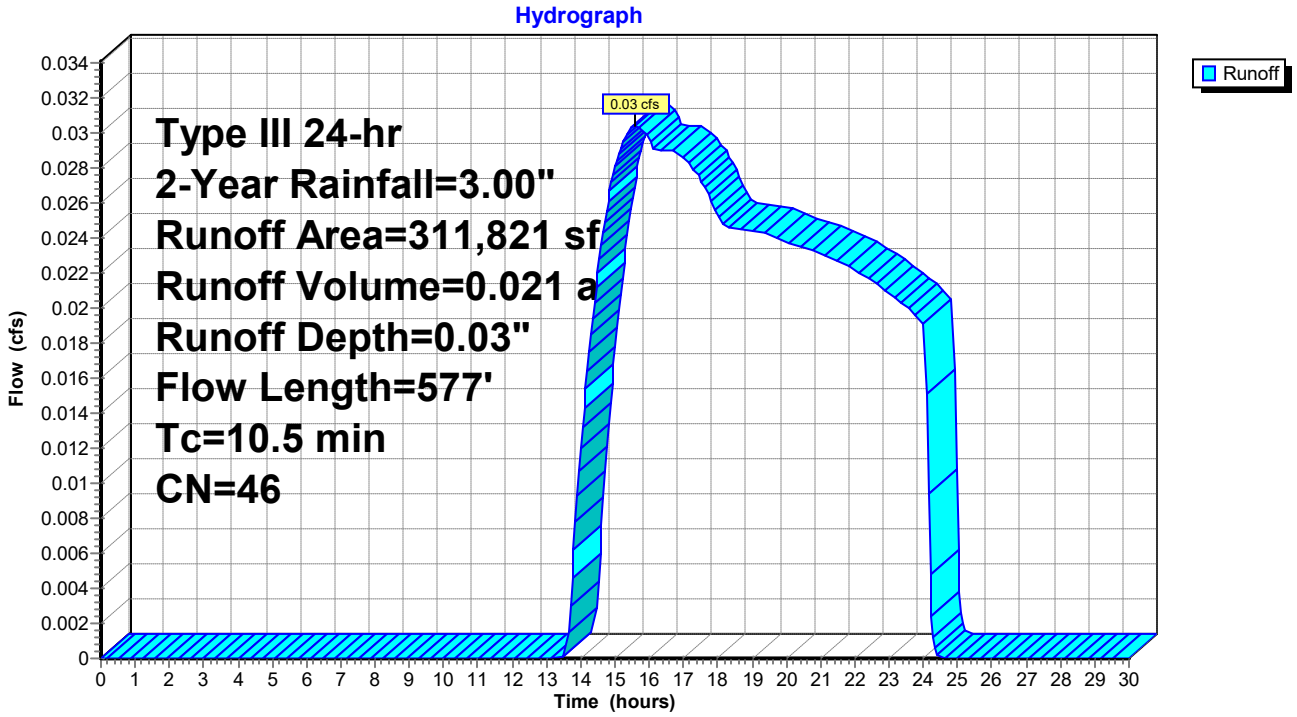
Runoff = 0.03 cfs @ 15.61 hrs, Volume= 0.021 af, Depth= 0.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.00"

Area (sf)	CN	Description
127,006	39	>75% Grass cover, Good, HSG A
60,526	30	Woods, Good, HSG A
124,289	61	>75% Grass cover, Good, HSG B
311,821	46	Weighted Average
311,821		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	75	0.0200	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.2	27	0.0200	2.28		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.4	90	0.0670	4.17		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.9	376	0.0400	3.22		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.0	9	0.3330	9.29		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
10.5	577	Total			

Subcatchment P122: TO DB12



Summary for Subcatchment P123: TO D.BASIN#13

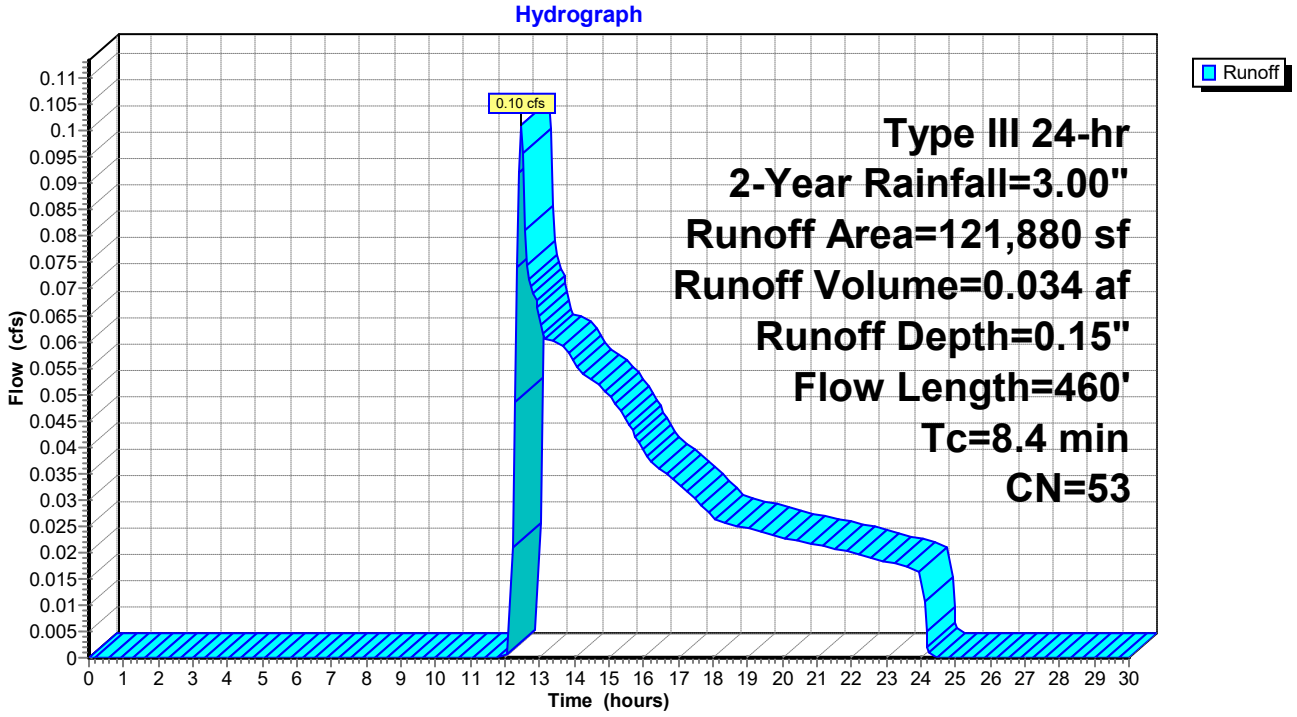
Runoff = 0.10 cfs @ 12.47 hrs, Volume= 0.034 af, Depth= 0.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.00"

Area (sf)	CN	Description
43,002	39	>75% Grass cover, Good, HSG A
70,744	61	>75% Grass cover, Good, HSG B
8,134	55	Woods, Good, HSG B
121,880	53	Weighted Average
121,880		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4	75	0.0360	0.20		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.0	8	0.0360	3.05		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.8	207	0.0670	4.17		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.2	170	0.0200	2.28		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
8.4	460	Total			

Subcatchment P123: TO D.BASIN#13



Summary for Subcatchment P13: TO BASIN#1

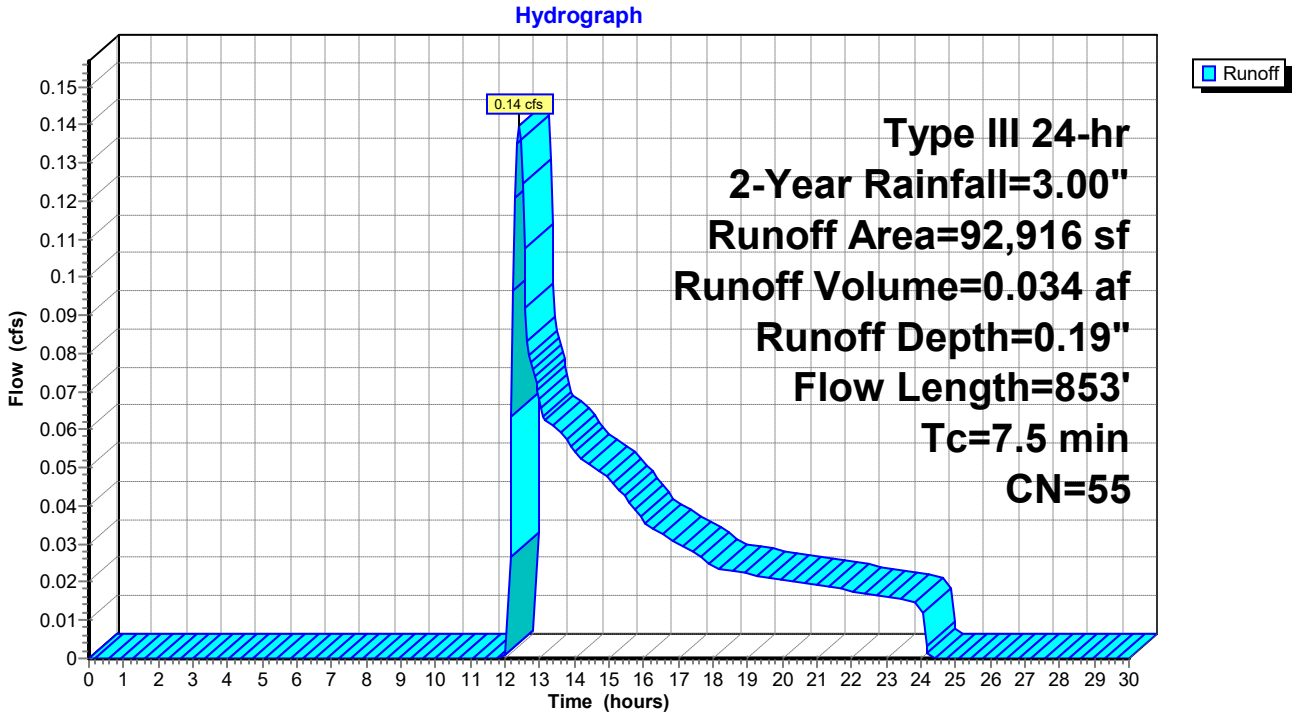
Runoff = 0.14 cfs @ 12.40 hrs, Volume= 0.034 af, Depth= 0.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.00"

Area (sf)	CN	Description
53,074	39	>75% Grass cover, Good, HSG A
13,231	76	Gravel roads, HSG A
23,298	74	>75% Grass cover, Good, HSG C
3,313	89	Gravel roads, HSG C
92,916	55	Weighted Average
92,916		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.9	75	0.0690	0.26		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.1	25	0.0690	4.23		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.7	200	0.1000	5.09		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.0	15	0.3300	9.25		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.2	37	0.0500	3.60		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.6	501	0.1000	5.09		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
7.5	853	Total			

Subcatchment P13: TO BASIN#1



Summary for Subcatchment P131: TO DP131

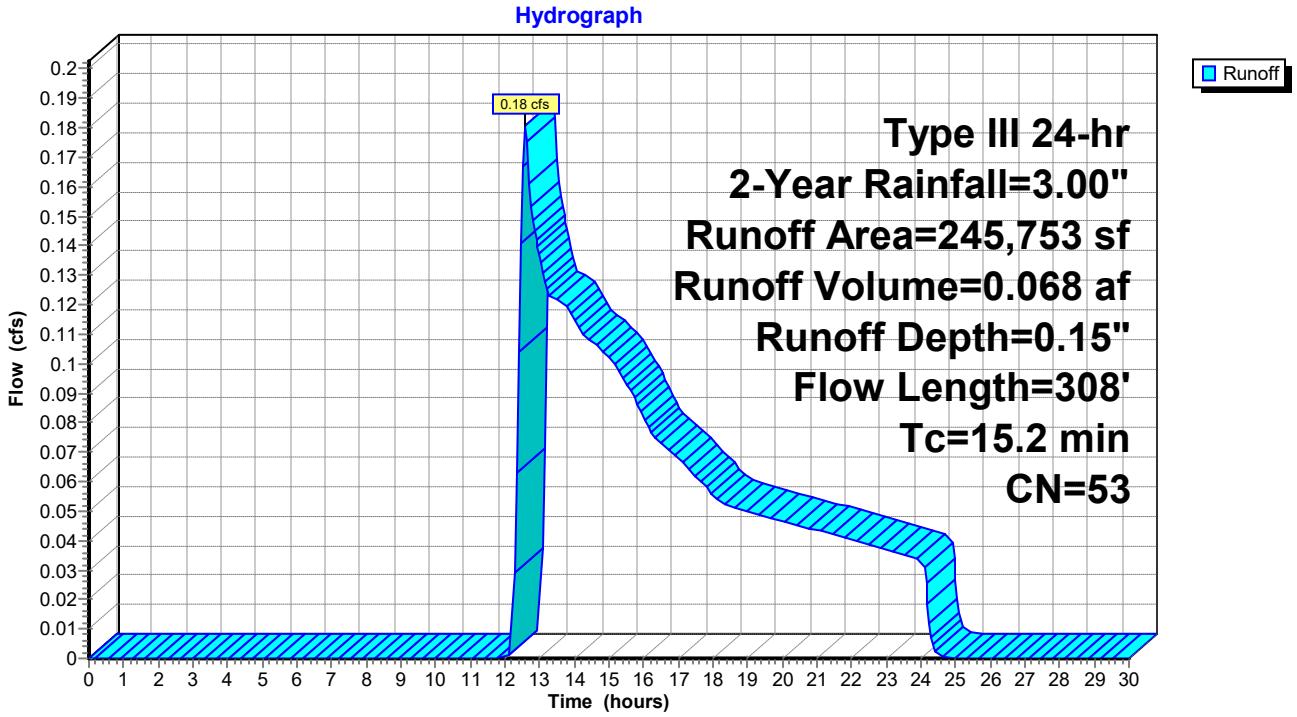
Runoff = 0.18 cfs @ 12.57 hrs, Volume= 0.068 af, Depth= 0.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.00"

Area (sf)	CN	Description
565	39	>75% Grass cover, Good, HSG A
3,137	30	Woods, Good, HSG A
5,000	61	>75% Grass cover, Good, HSG B
188,185	55	Woods, Good, HSG B
7,306	30	Brush, Good, HSG A
41,560	48	Brush, Good, HSG B
245,753	53	Weighted Average
245,753		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	10	0.0450	0.14		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
11.4	65	0.0450	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
0.3	17	0.0450	1.06		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.2	101	0.0800	1.41		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.1	115	0.1200	1.73		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.2	308	Total			

Subcatchment P131: TO DP131



Summary for Subcatchment P141: TO DP14

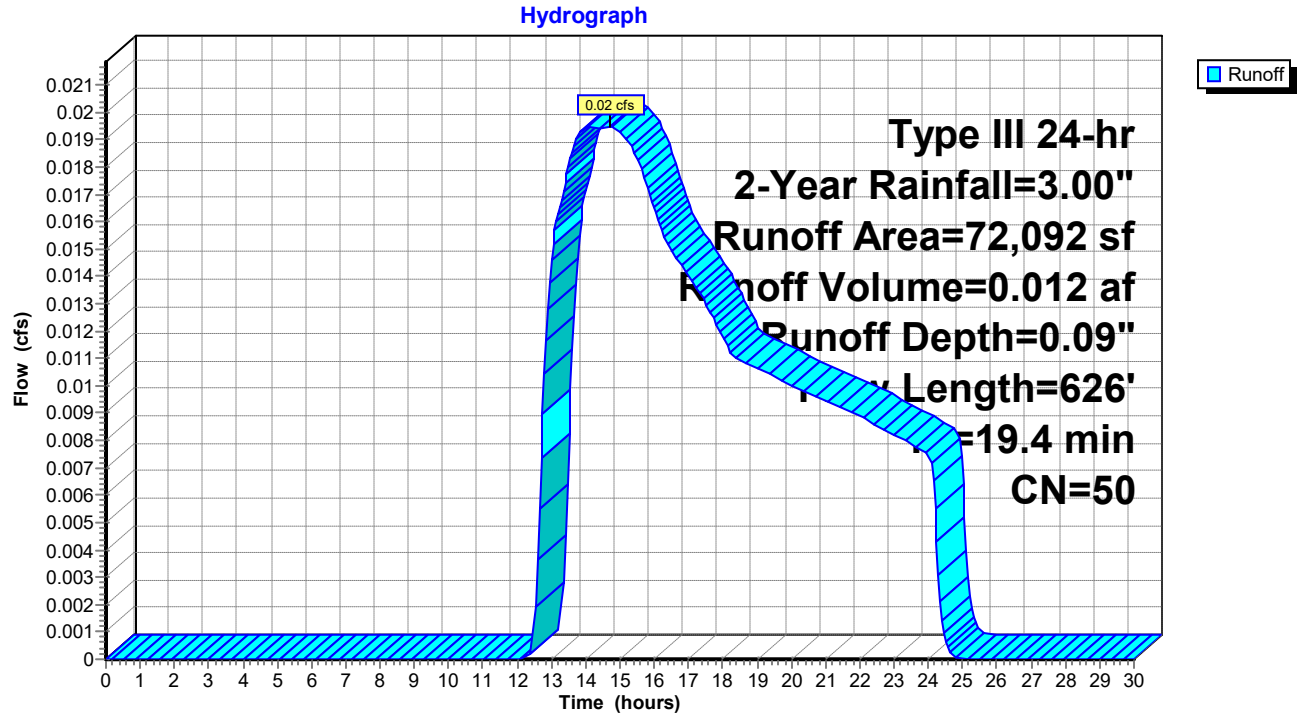
Runoff = 0.02 cfs @ 14.70 hrs, Volume= 0.012 af, Depth= 0.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.00"

Area (sf)	CN	Description
7,404	61	>75% Grass cover, Good, HSG B
46,382	55	Woods, Good, HSG B
4,366	39	>75% Grass cover, Good, HSG A
13,940	30	Woods, Good, HSG A
72,092	50	Weighted Average
72,092		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	75	0.0950	0.13		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
4.0	366	0.0950	1.54		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.5	69	0.1770	2.10		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
5.5	116	0.0050	0.35		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
19.4	626	Total			

Subcatchment P141: TO DP14



Summary for Subcatchment P142: TO D-BASIN#14

[49] Hint: Tc<2dt may require smaller dt

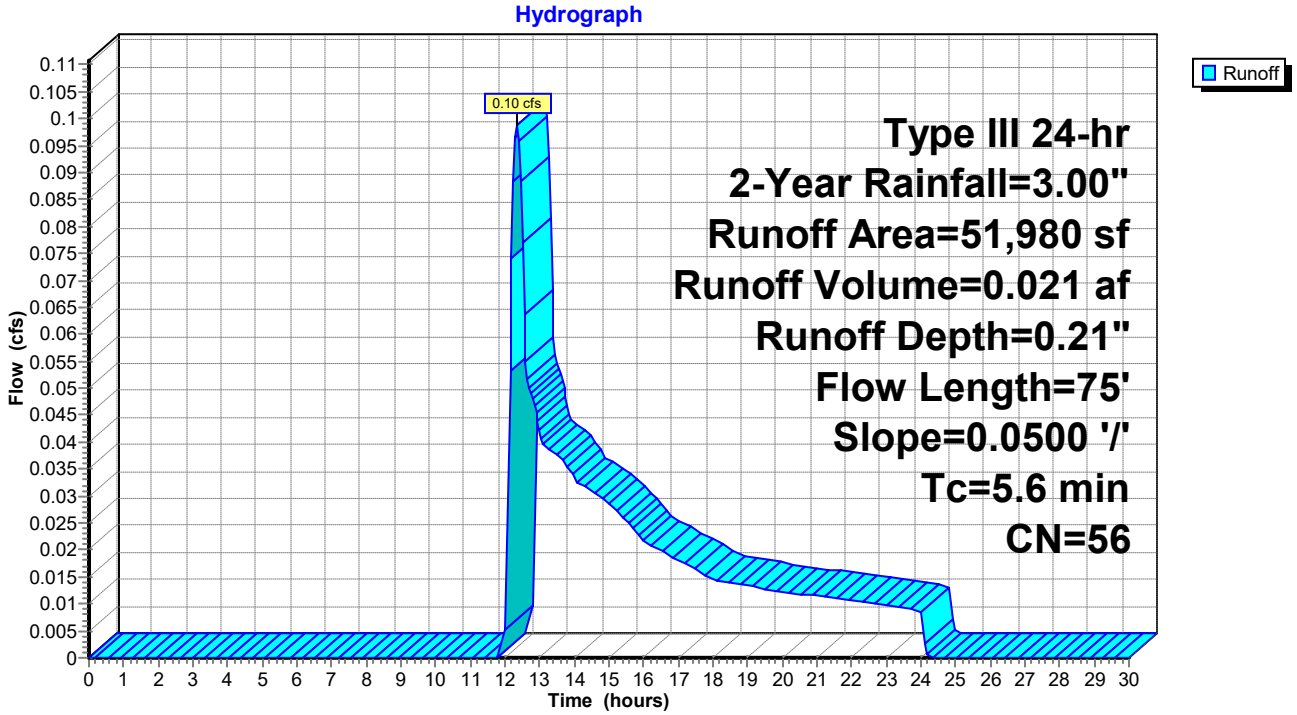
Runoff = 0.10 cfs @ 12.35 hrs, Volume= 0.021 af, Depth= 0.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.00"

Area (sf)	CN	Description
12,322	39	>75% Grass cover, Good, HSG A
39,658	61	>75% Grass cover, Good, HSG B
51,980	56	Weighted Average
51,980		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	75	0.0500	0.22		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"

Subcatchment P142: TO D-BASIN#14



Summary for Subcatchment P151: TO DP15

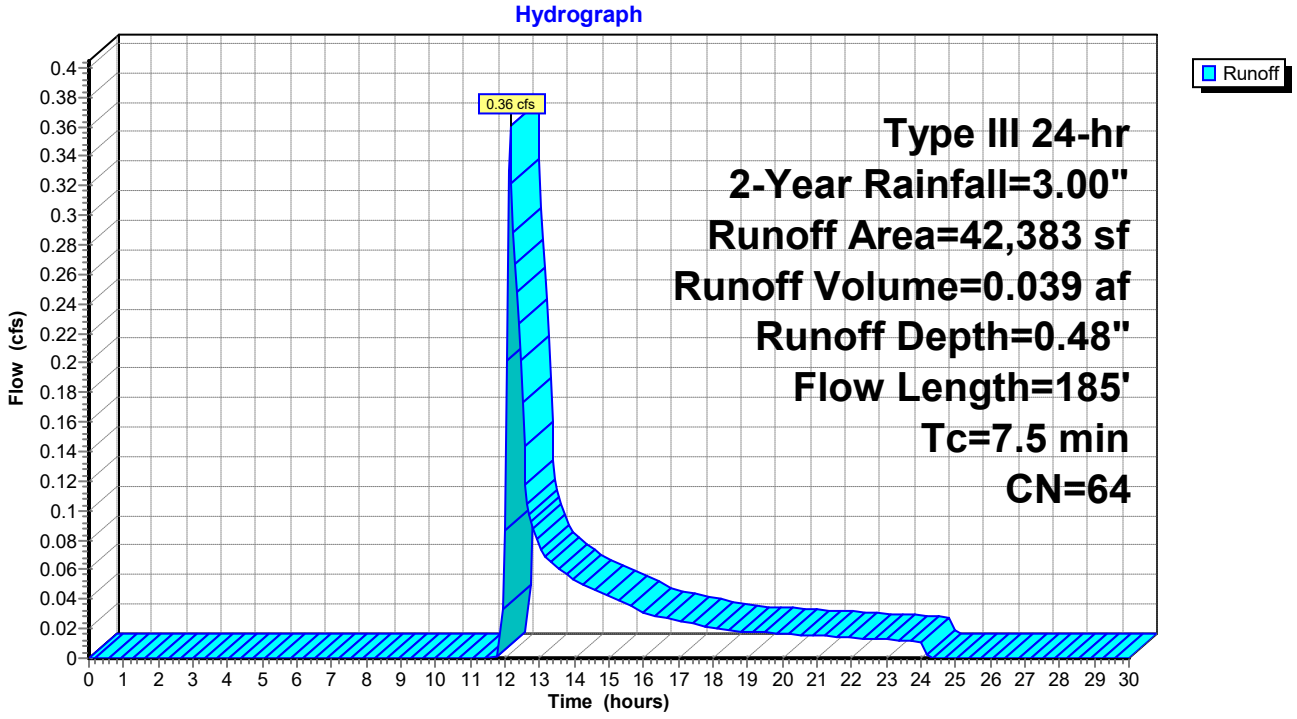
Runoff = 0.36 cfs @ 12.15 hrs, Volume= 0.039 af, Depth= 0.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.00"

Area (sf)	CN	Description
35,472	61	>75% Grass cover, Good, HSG B
2,601	55	Woods, Good, HSG B
4,310	98	Paved parking, HSG B
42,383	64	Weighted Average
38,073		89.83% Pervious Area
4,310		10.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.7	75	0.0320	0.19		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.3	50	0.0320	2.88		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.5	60	0.1670	2.04		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
7.5	185	Total			

Subcatchment P151: TO DP15



Summary for Subcatchment P161: TO DP16

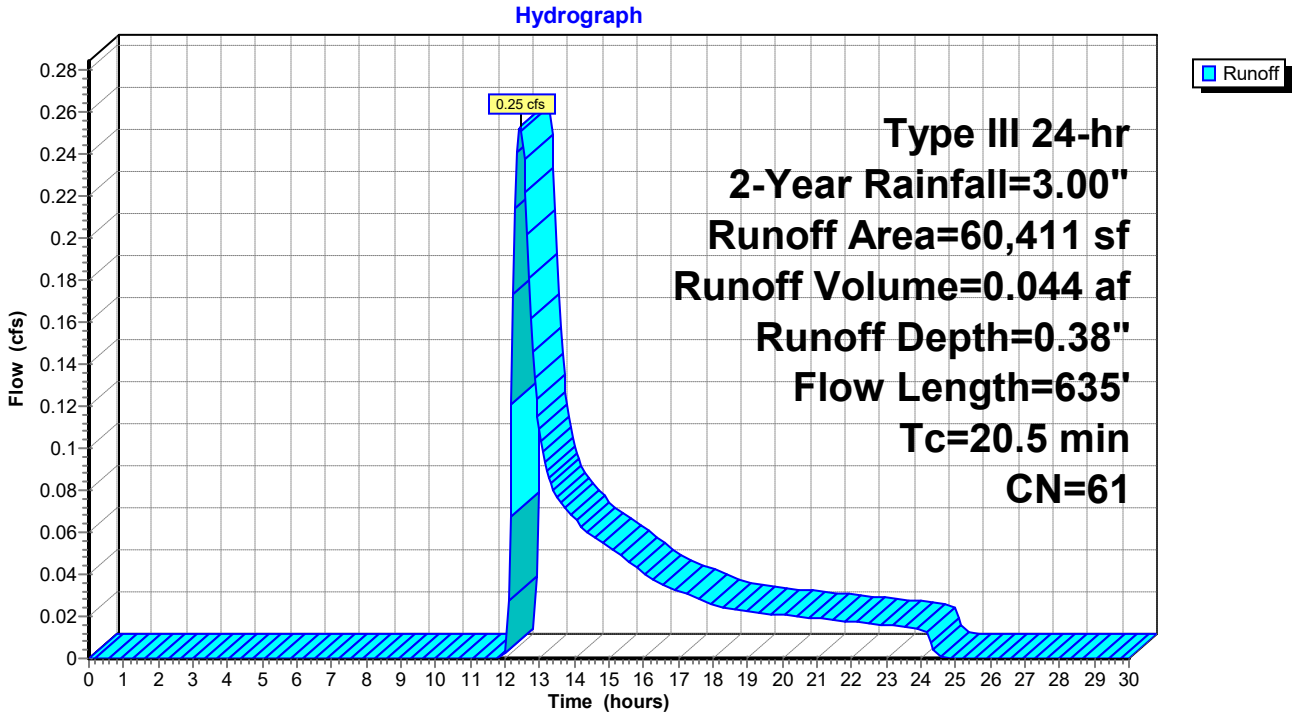
Runoff = 0.25 cfs @ 12.44 hrs, Volume= 0.044 af, Depth= 0.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.00"

Area (sf)	CN	Description
17,678	61	>75% Grass cover, Good, HSG B
36,188	55	Woods, Good, HSG B
6,545	98	Paved parking, HSG B
60,411	61	Weighted Average
53,866		89.17% Pervious Area
6,545		10.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.5	75	0.0470	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
5.9	326	0.0340	0.92		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.0	5	0.0430	4.21		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.0	179	0.0890	1.49		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.1	50	0.1800	8.61		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
20.5	635	Total			

Subcatchment P161: TO DP16



Summary for Subcatchment P21: TO DP#2

[45] Hint: Runoff=Zero

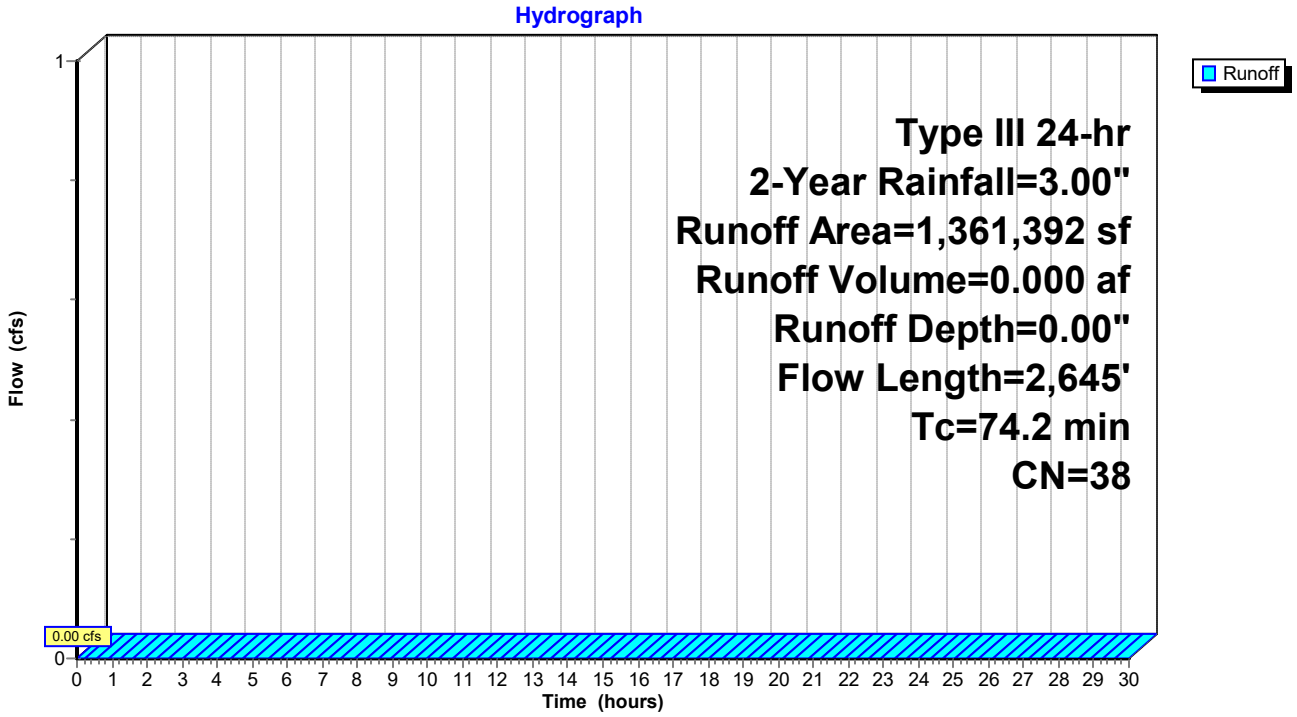
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.00"

Area (sf)	CN	Description
355,191	39	>75% Grass cover, Good, HSG A
803,291	30	Woods, Good, HSG A
19,791	76	Gravel roads, HSG A
9,527	98	Paved parking, HSG A
109,550	61	>75% Grass cover, Good, HSG B
40,873	70	Woods, Good, HSG C
23,169	55	Woods, Good, HSG B
1,361,392	38	Weighted Average
1,351,865		99.30% Pervious Area
9,527		0.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	75	0.1000	0.30		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.9	274	0.1000	5.09		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
6.7	400	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
14.5	475	0.0120	0.55		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
31.0	778	0.0070	0.42		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
16.9	643	0.0160	0.63		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
74.2	2,645	Total			

Subcatchment P21: TO DP#2



Summary for Subcatchment P21A: TO SB1

[49] Hint: Tc<2dt may require smaller dt

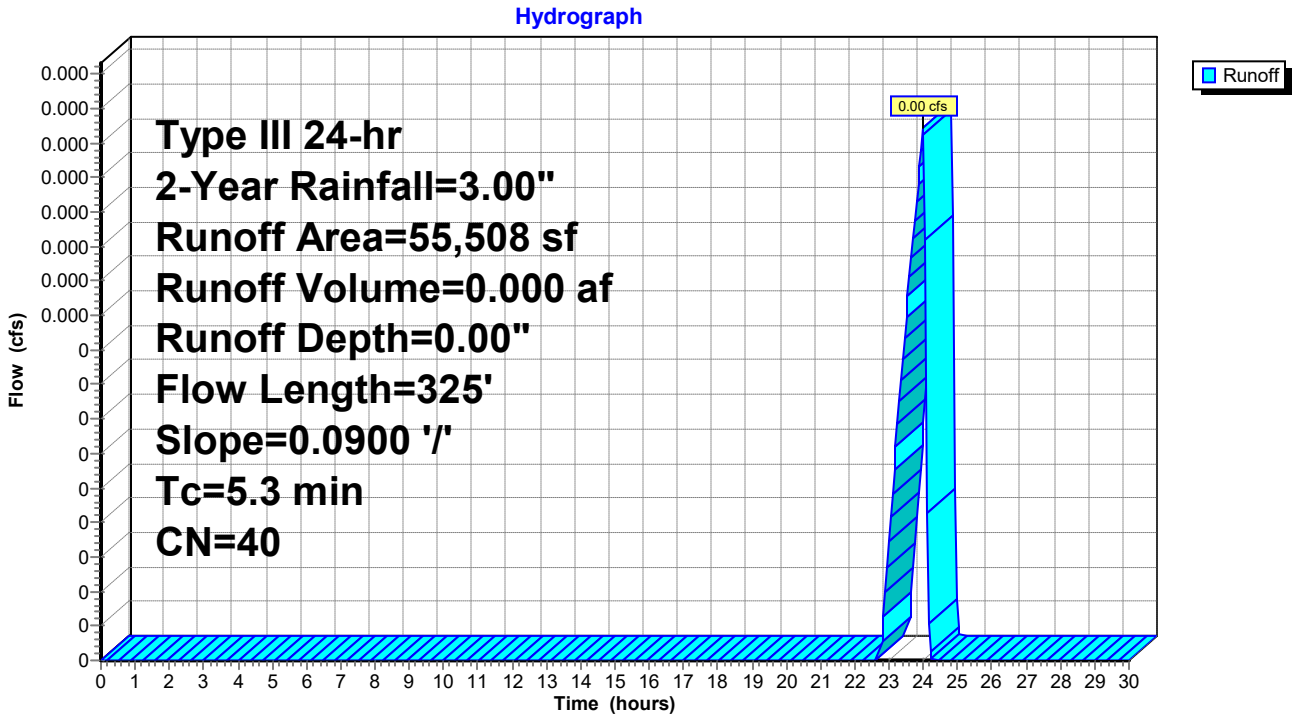
Runoff = 0.00 cfs @ 23.98 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.00"

Area (sf)	CN	Description
53,568	39	>75% Grass cover, Good, HSG A
1,940	76	Gravel roads, HSG A
55,508	40	Weighted Average
55,508		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	75	0.0900	0.28		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.9	250	0.0900	4.83		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
5.3	325	Total			

Subcatchment P21A: TO SB1



Summary for Subcatchment P21B: TO DCB-F

[49] Hint: Tc<2dt may require smaller dt

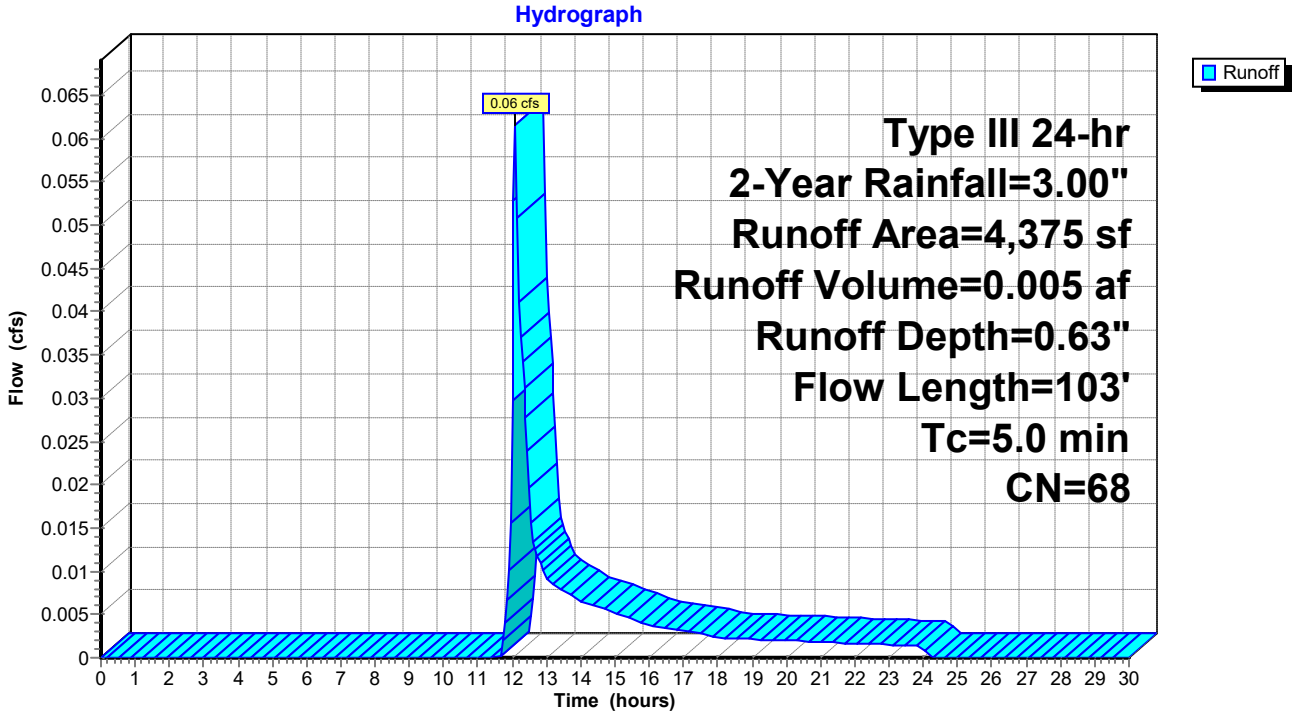
Runoff = 0.06 cfs @ 12.10 hrs, Volume= 0.005 af, Depth= 0.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.00"

Area (sf)	CN	Description
2,227	39	>75% Grass cover, Good, HSG A
2,148	98	Paved parking, HSG A
4,375	68	Weighted Average
2,227		50.90% Pervious Area
2,148		49.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	50	0.0100	0.88		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
0.2	19	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	34	0.0600	3.94		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.2	103	Total, Increased to minimum Tc = 5.0 min			

Subcatchment P21B: TO DCB-F



Summary for Subcatchment P22: TO BASIN#3

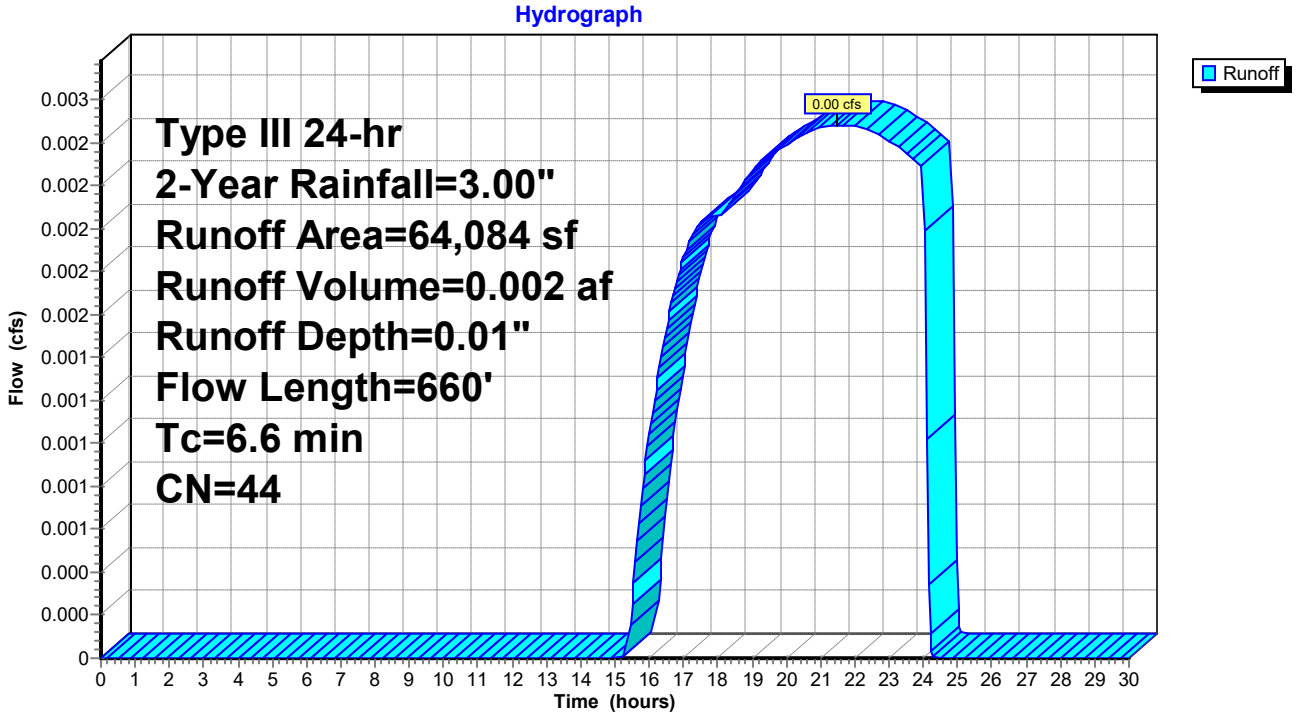
Runoff = 0.00 cfs @ 21.50 hrs, Volume= 0.002 af, Depth= 0.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.00"

Area (sf)	CN	Description
56,223	39	>75% Grass cover, Good, HSG A
7,861	76	Gravel roads, HSG A
64,084	44	Weighted Average
64,084		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	75	0.0800	0.27		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.4	110	0.0800	4.55		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.1	14	0.0200	2.28		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.5	461	0.1000	5.09		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
6.6	660	Total			

Subcatchment P22: TO BASIN#3



Summary for Subcatchment P23: TO BASIN #4

[49] Hint: Tc<2dt may require smaller dt

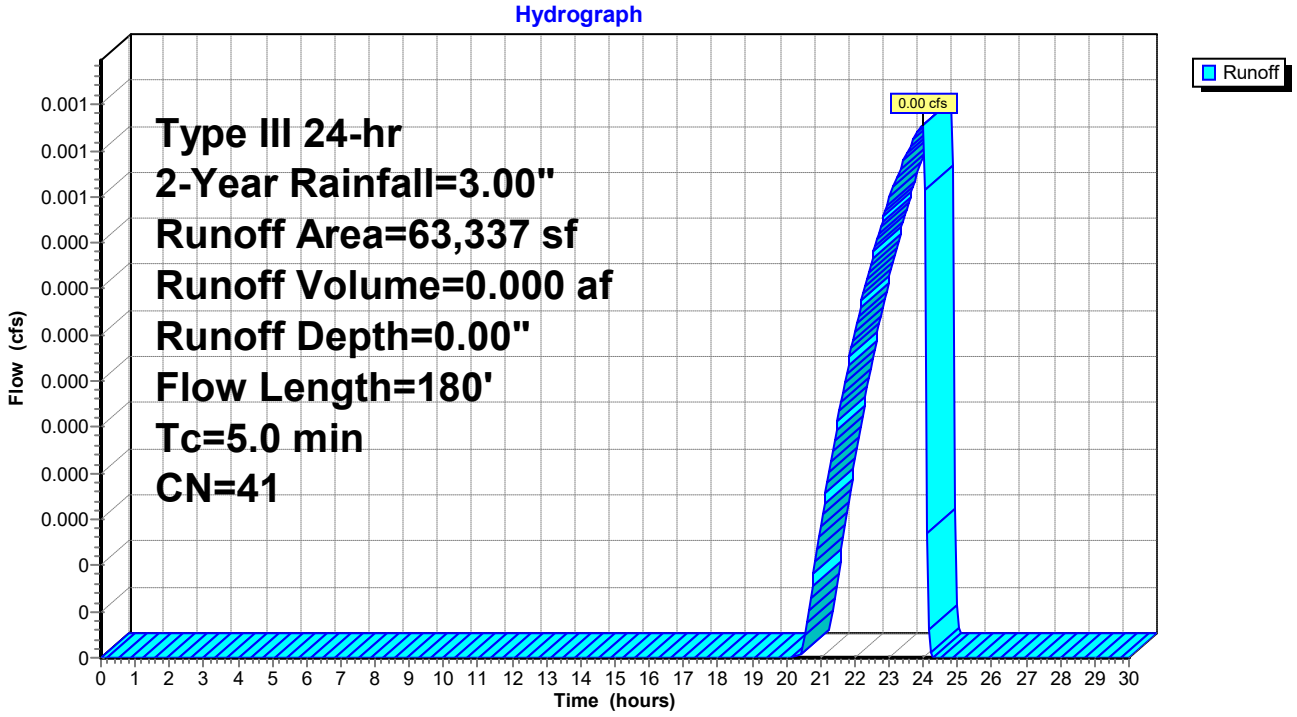
Runoff = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.00"

Area (sf)	CN	Description
61,261	39	>75% Grass cover, Good, HSG A
2,076	98	Paved parking, HSG A
63,337	41	Weighted Average
61,261		96.72% Pervious Area
2,076		3.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	50	0.0200	1.16		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
0.0	26	0.3300	9.25		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.3	104	0.1000	5.09		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.0	180	Total, Increased to minimum Tc = 5.0 min			

Subcatchment P23: TO BASIN #4



Summary for Subcatchment P24: TO BASIN#5

[49] Hint: Tc<2dt may require smaller dt

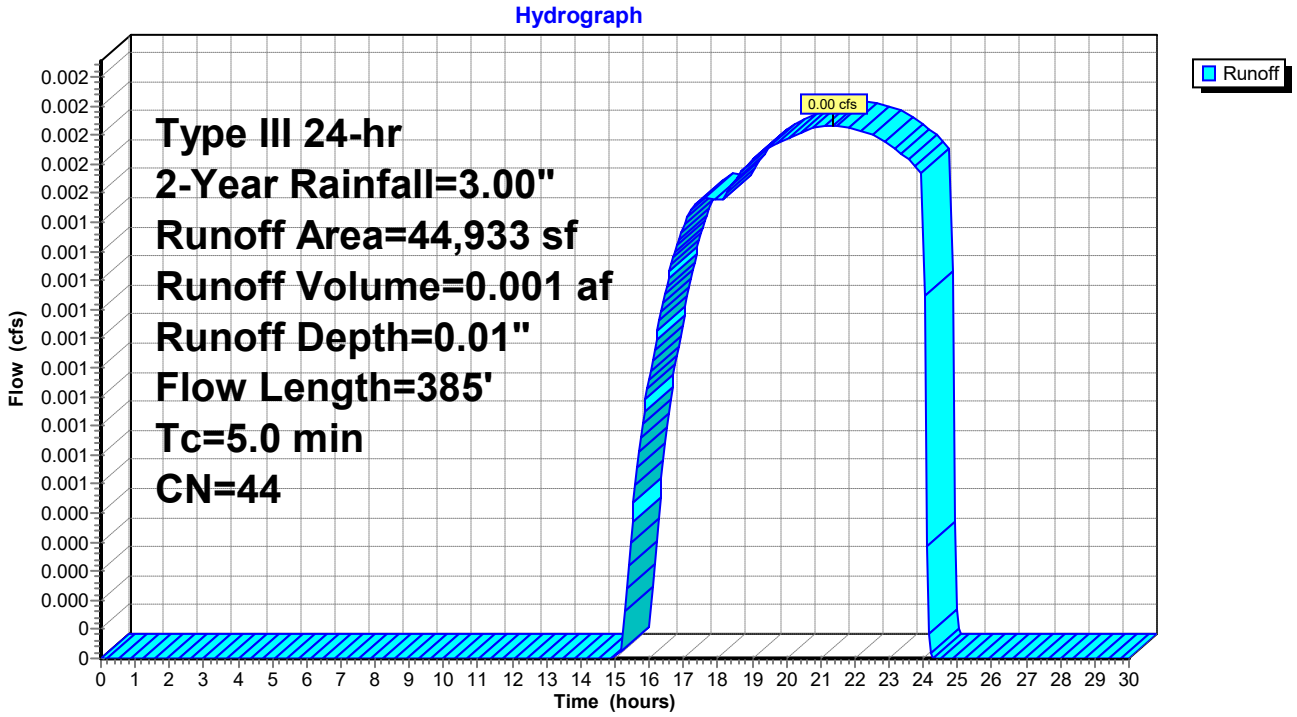
Runoff = 0.00 cfs @ 21.36 hrs, Volume= 0.001 af, Depth= 0.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.00"

Area (sf)	CN	Description
39,326	39	>75% Grass cover, Good, HSG A
2,324	76	Gravel roads, HSG A
1,422	98	Paved parking, HSG A
1,861	61	>75% Grass cover, Good, HSG B
44,933	44	Weighted Average
43,511		96.84% Pervious Area
1,422		3.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	50	0.0200	1.16		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
0.7	210	0.1000	5.09		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.1	14	0.0200	2.28		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.4	111	0.1000	5.09		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.9	385	Total, Increased to minimum Tc = 5.0 min			

Subcatchment P24: TO BASIN#5



Summary for Subcatchment P25: TO DCB-D

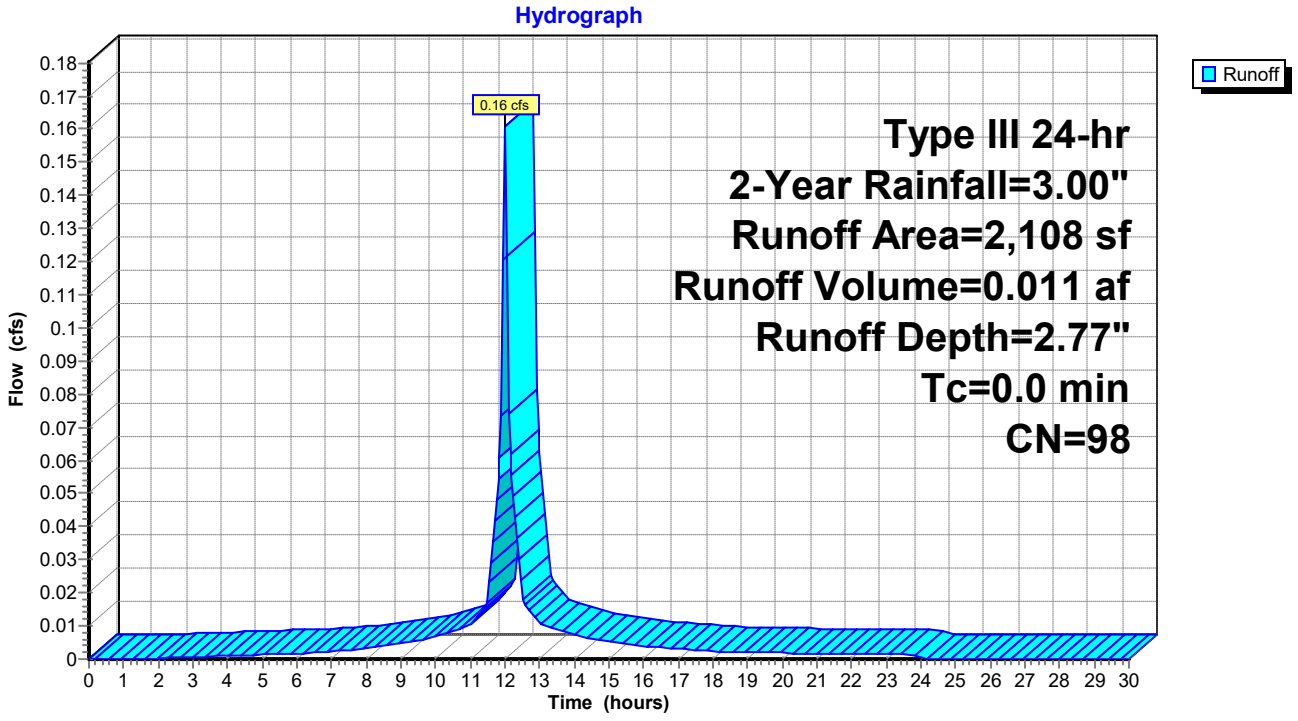
[46] Hint: Tc=0 (Instant runoff peak depends on dt)

Runoff = 0.16 cfs @ 12.00 hrs, Volume= 0.011 af, Depth= 2.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.00"

Area (sf)	CN	Description
2,108	98	Paved parking, HSG A
2,108		100.00% Impervious Area

Subcatchment P25: TO DCB-D



Summary for Subcatchment P26: TO DCB-A

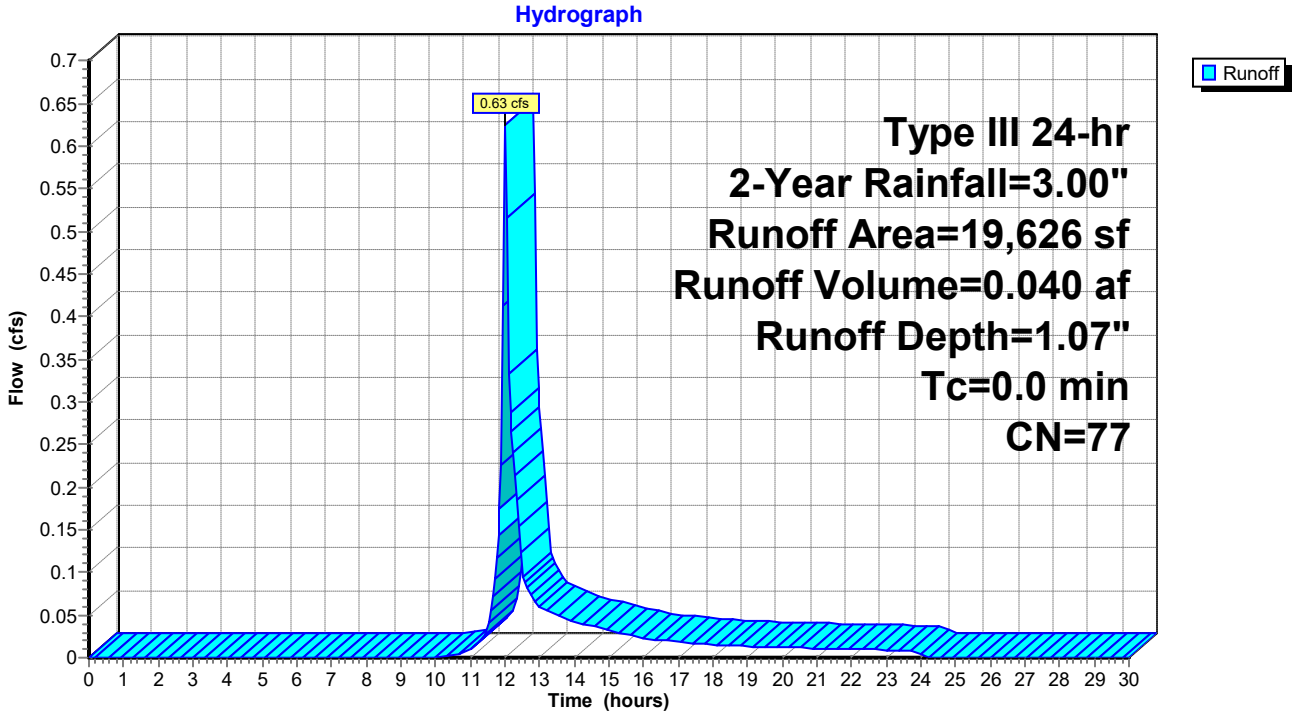
[46] Hint: Tc=0 (Instant runoff peak depends on dt)

Runoff = 0.63 cfs @ 12.01 hrs, Volume= 0.040 af, Depth= 1.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.00"

Area (sf)	CN	Description
8,453	98	Paved parking, HSG A
11,173	61	>75% Grass cover, Good, HSG B
19,626	77	Weighted Average
11,173		56.93% Pervious Area
8,453		43.07% Impervious Area

Subcatchment P26: TO DCB-A



Summary for Subcatchment P27: TO DCB-B

[49] Hint: Tc<2dt may require smaller dt

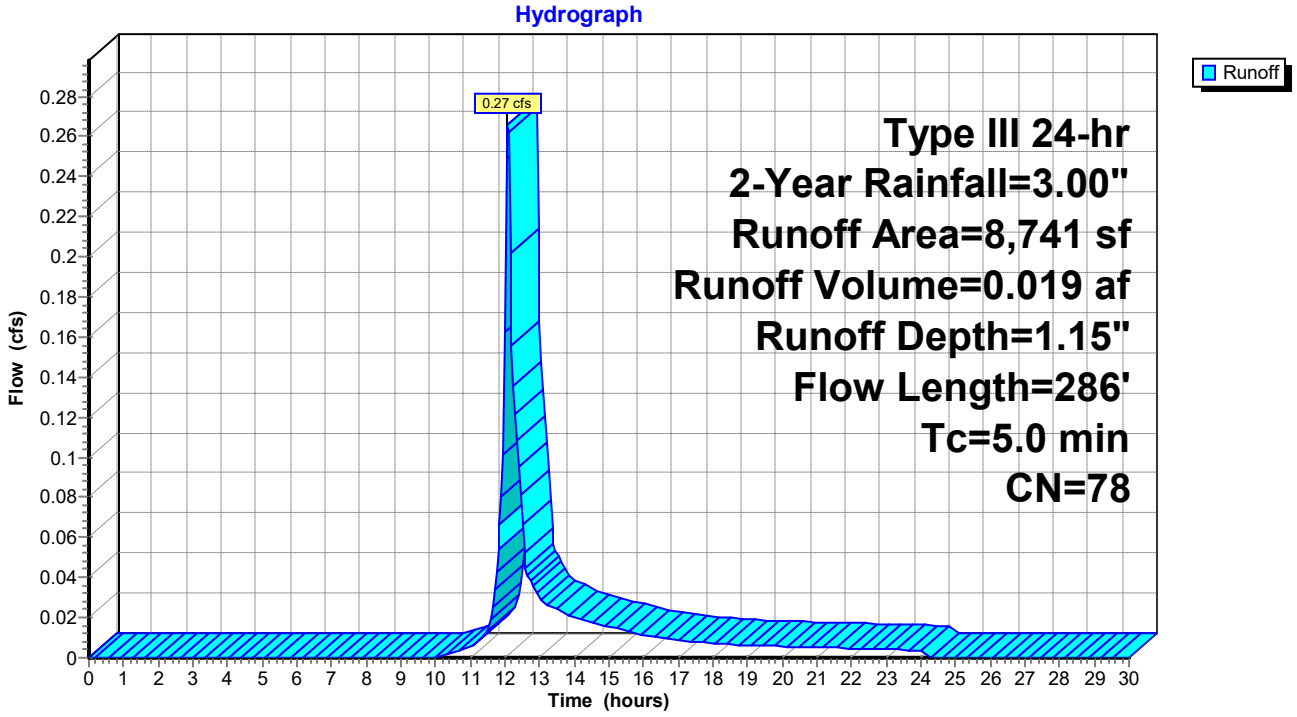
Runoff = 0.27 cfs @ 12.08 hrs, Volume= 0.019 af, Depth= 1.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.00"

Area (sf)	CN	Description
4,119	98	Paved parking, HSG A
4,622	61	>75% Grass cover, Good, HSG B
8,741	78	Weighted Average
4,622		52.88% Pervious Area
4,119		47.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	31	0.0200	1.05		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
0.4	19	0.0100	0.72		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
1.9	236	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.8	286	Total, Increased to minimum Tc = 5.0 min			

Subcatchment P27: TO DCB-B



Summary for Subcatchment P28: TO DCB-C

[49] Hint: Tc<2dt may require smaller dt

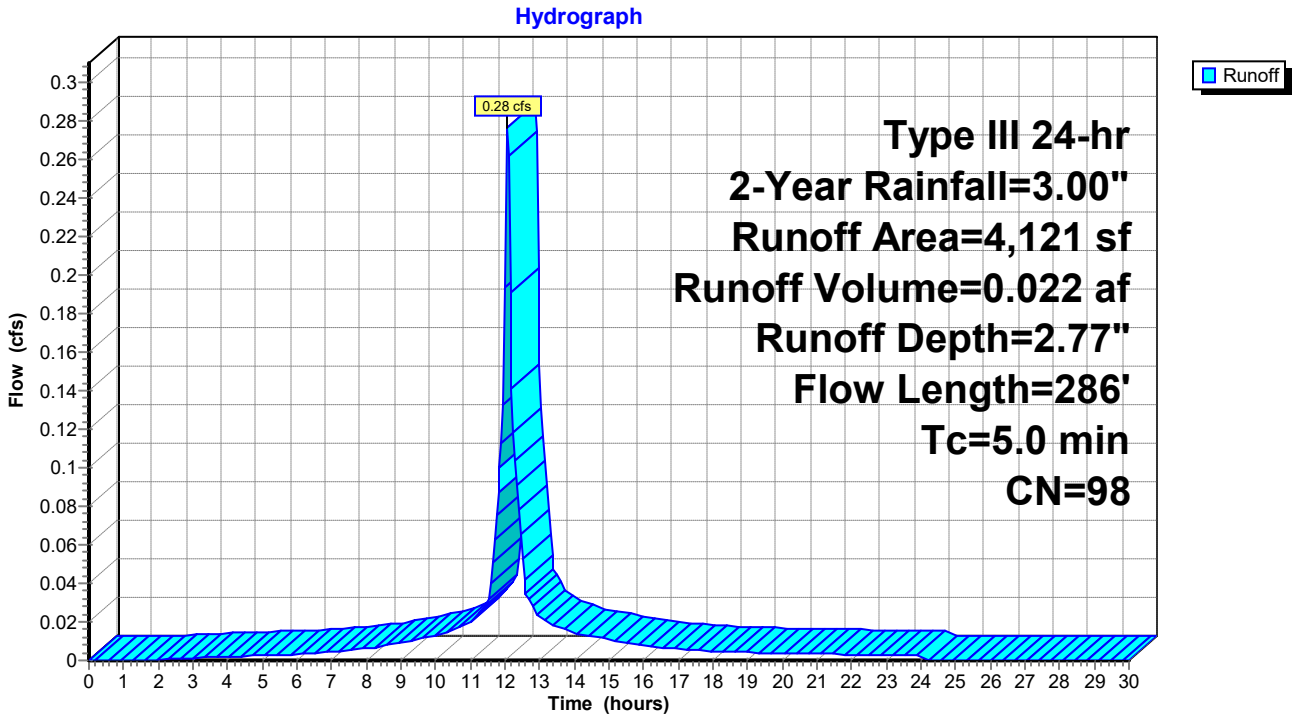
Runoff = 0.28 cfs @ 12.07 hrs, Volume= 0.022 af, Depth= 2.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.00"

Area (sf)	CN	Description
4,121	98	Paved parking, HSG A
4,121		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	31	0.0200	1.05		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
0.4	19	0.0100	0.72		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
1.9	236	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.8	286	Total, Increased to minimum Tc = 5.0 min			

Subcatchment P28: TO DCB-C



Summary for Subcatchment P29: TO DCB-D

[49] Hint: Tc<2dt may require smaller dt

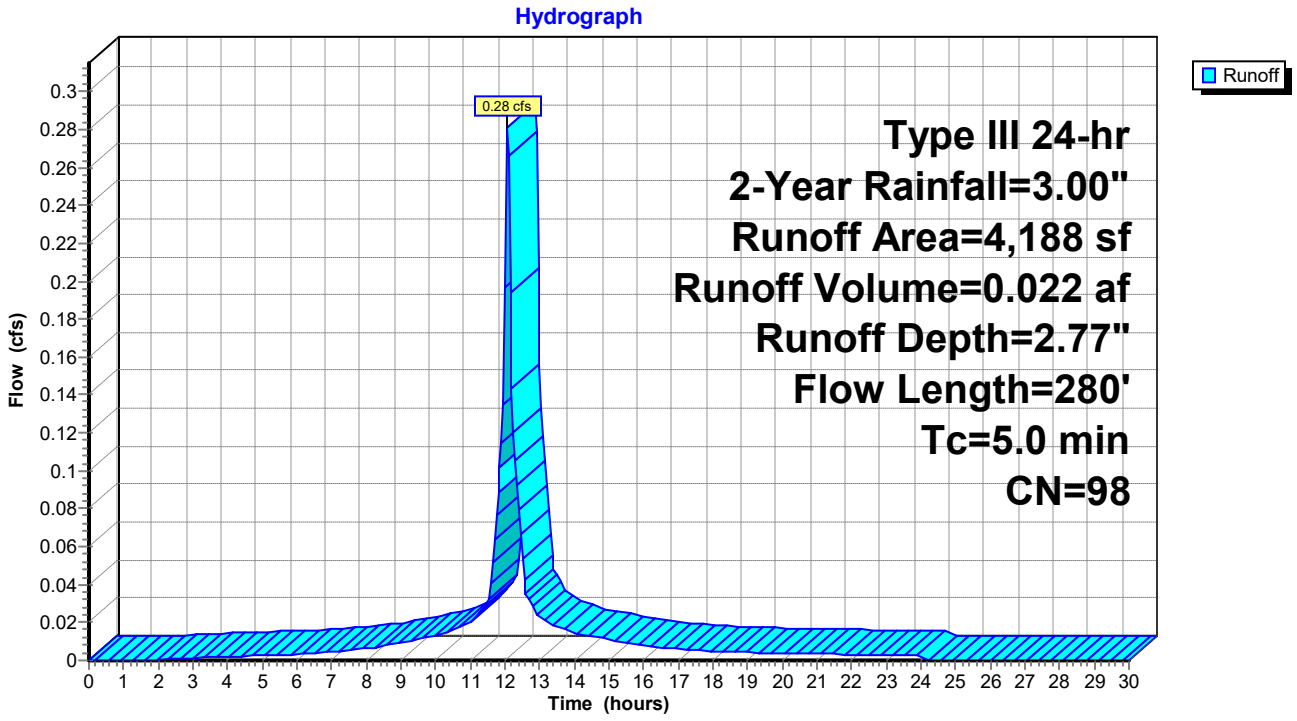
Runoff = 0.28 cfs @ 12.07 hrs, Volume= 0.022 af, Depth= 2.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.00"

Area (sf)	CN	Description
4,188	98	Paved parking, HSG A
4,188		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	21	0.0200	0.97		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
0.6	29	0.0100	0.79		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
1.9	230	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.9	280	Total, Increased to minimum Tc = 5.0 min			

Subcatchment P29: TO DCB-D



Summary for Subcatchment PS1: TO DCB#1

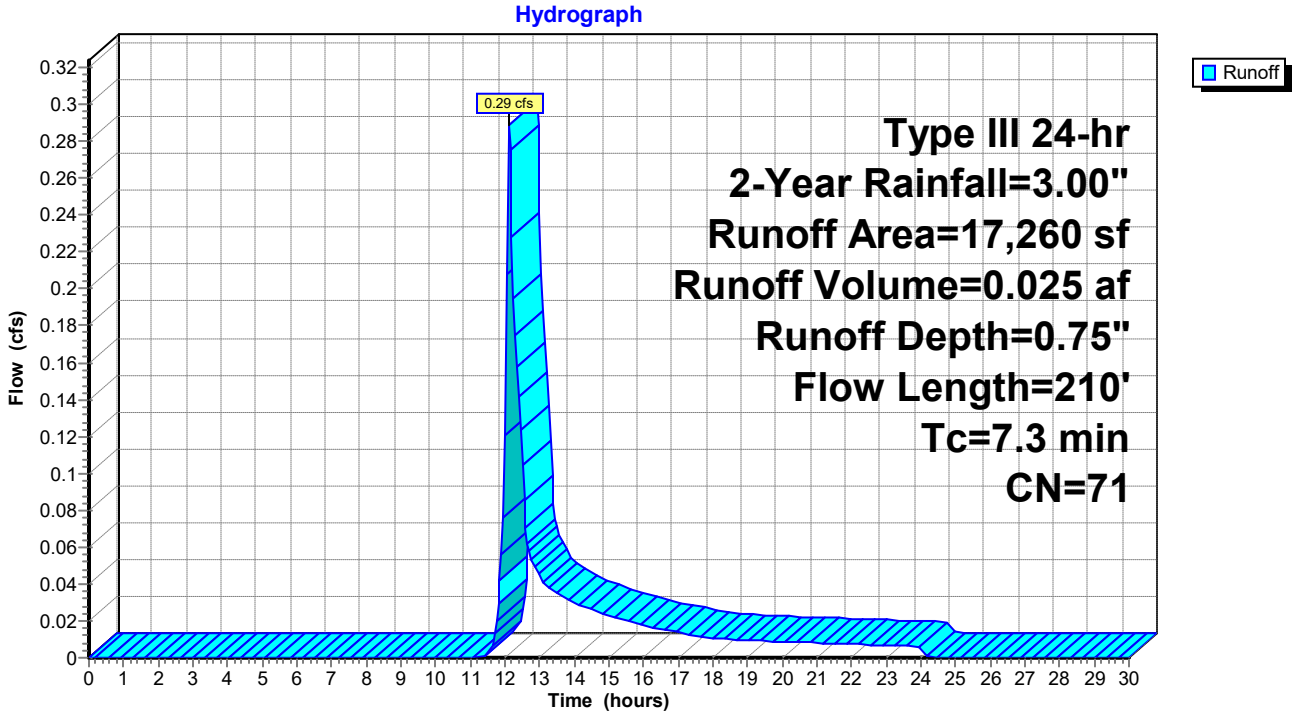
Runoff = 0.29 cfs @ 12.12 hrs, Volume= 0.025 af, Depth= 0.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.00"

Area (sf)	CN	Description
12,716	61	>75% Grass cover, Good, HSG B
4,544	98	Paved parking, HSG B
17,260	71	Weighted Average
12,716		73.67% Pervious Area
4,544		26.33% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	48	0.0200	0.14		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
1.2	27	0.3300	0.39		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.0	18	0.3300	9.25		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.5	117	0.0380	3.96		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
7.3	210	Total			

Subcatchment PS1: TO DCB#1



Summary for Subcatchment PS2: TO DCB#2

[49] Hint: Tc<2dt may require smaller dt

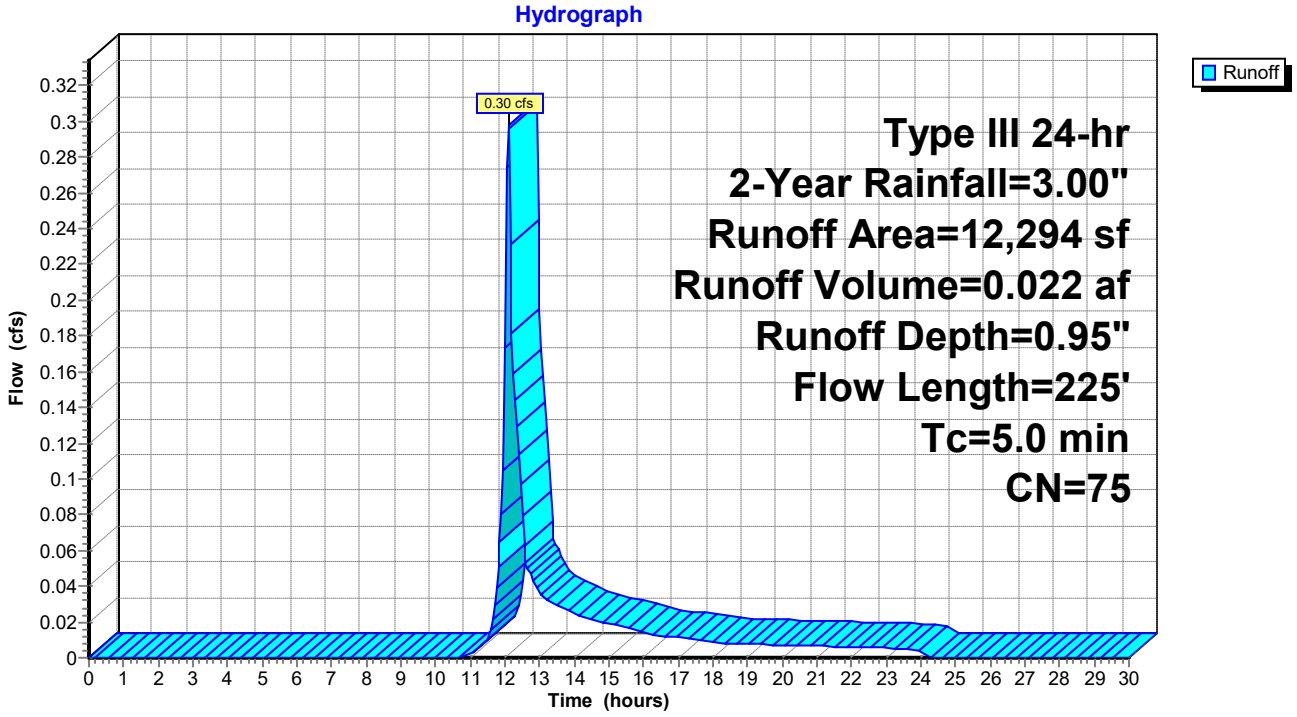
Runoff = 0.30 cfs @ 12.09 hrs, Volume= 0.022 af, Depth= 0.95"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.00"

Area (sf)	CN	Description
7,714	61	>75% Grass cover, Good, HSG B
4,580	98	Paved parking, HSG B
12,294	75	Weighted Average
7,714		62.75% Pervious Area
4,580		37.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.2	60	0.3300	0.46		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.5	85	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.3	80	0.0380	3.96		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
3.0	225	Total, Increased to minimum Tc = 5.0 min			

Subcatchment PS2: TO DCB#2



Summary for Reach 1R: (new Reach)

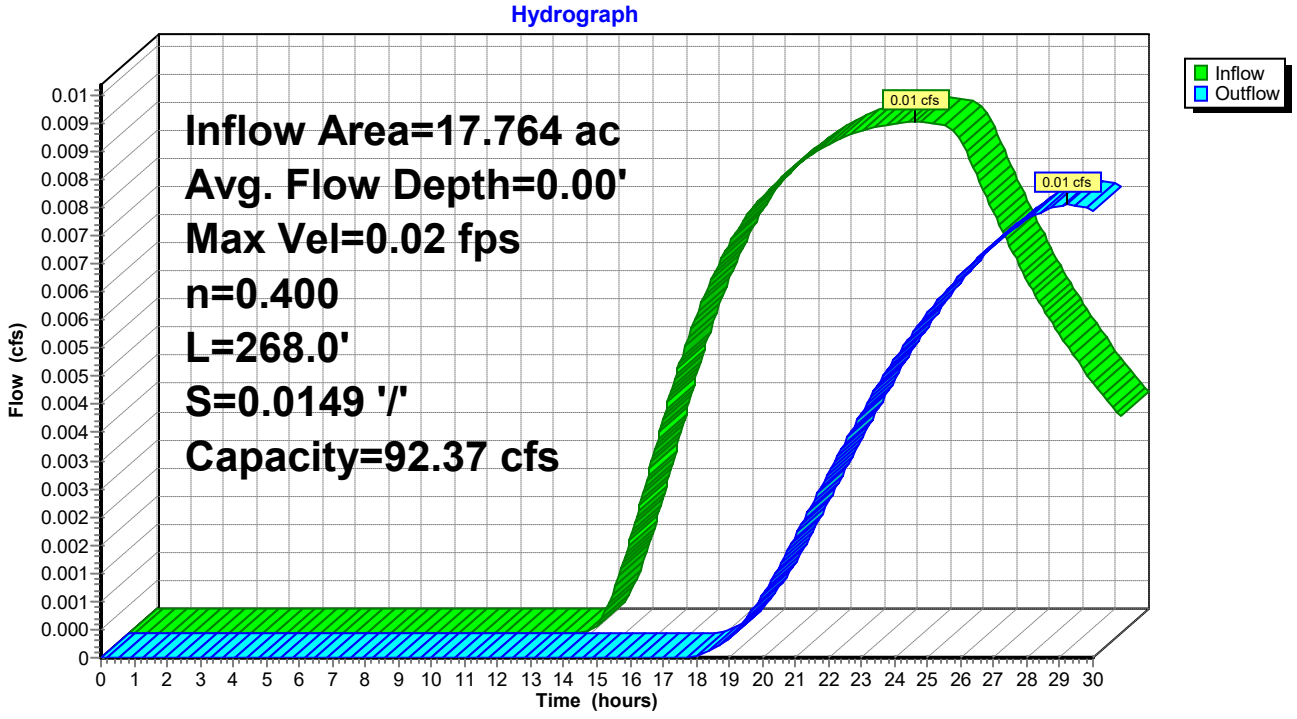
Inflow Area = 17.764 ac, 1.27% Impervious, Inflow Depth > 0.01" for 2-Year event
Inflow = 0.01 cfs @ 23.79 hrs, Volume= 0.009 af
Outflow = 0.01 cfs @ 29.24 hrs, Volume= 0.005 af, Atten= 11%, Lag= 326.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.02 fps, Min. Travel Time= 212.1 min
Avg. Velocity = 0.02 fps, Avg. Travel Time= 212.1 min

Peak Storage= 102 cf @ 25.70 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 1.00' Flow Area= 210.0 sf, Capacity= 92.37 cfs

200.00' x 1.00' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 220.00'
Length= 268.0' Slope= 0.0149 '/'
Inlet Invert= 872.00', Outlet Invert= 868.00'

Reach 1R: (new Reach)



Summary for Reach 2R: WOODS

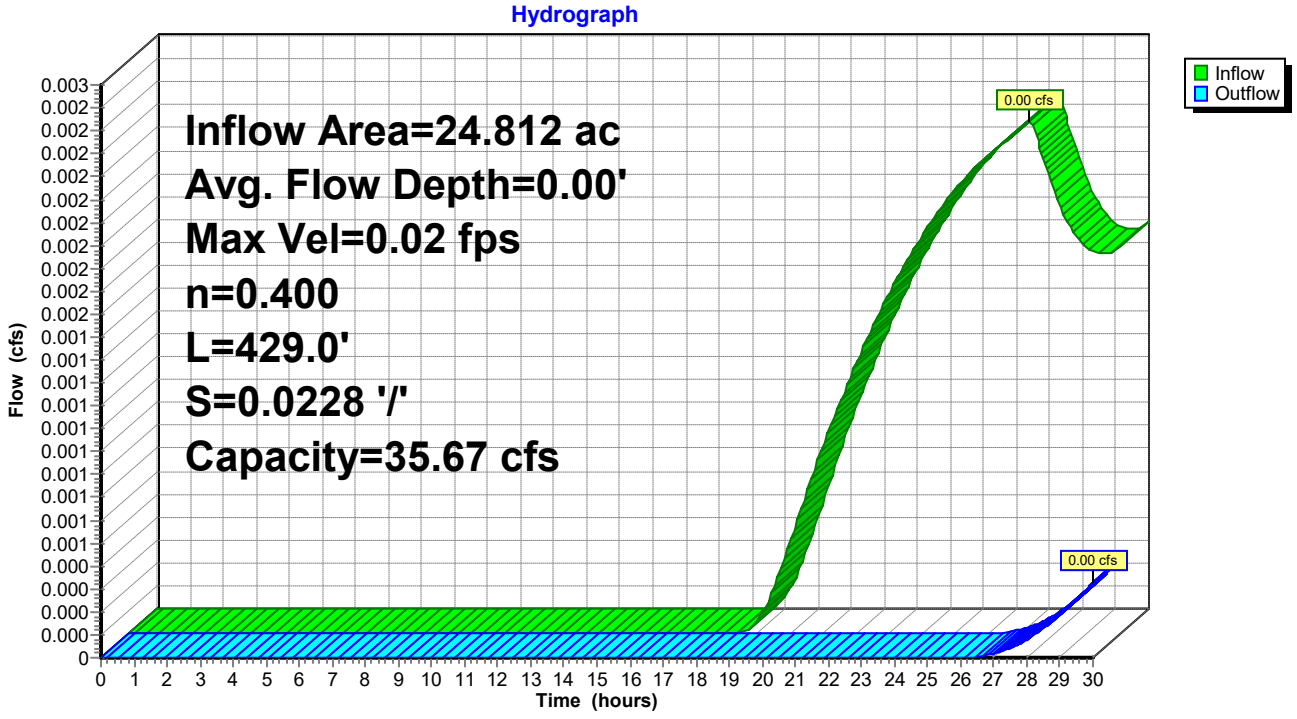
Inflow Area = 24.812 ac, 0.91% Impervious, Inflow Depth > 0.00" for 2-Year event
Inflow = 0.00 cfs @ 27.23 hrs, Volume= 0.001 af
Outflow = 0.00 cfs @ 30.00 hrs, Volume= 0.000 af, Atten= 85%, Lag= 165.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.02 fps, Min. Travel Time= 435.6 min
Avg. Velocity = 0.02 fps, Avg. Travel Time= 435.6 min

Peak Storage= 34 cf @ 30.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 35.67 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 429.0' Slope= 0.0228 '/'
Inlet Invert= 849.80', Outlet Invert= 840.00'

Reach 2R: WOODS



Summary for Reach 3R: GRASS

[79] Warning: Submerged Pond DB1 Primary device # 2 OUTLET by 0.01'

Inflow Area = 2.133 ac, 0.00% Impervious, Inflow Depth > 0.19" for 2-Year event
Inflow = 0.04 cfs @ 13.00 hrs, Volume= 0.034 af
Outflow = 0.04 cfs @ 14.65 hrs, Volume= 0.034 af, Atten= 0%, Lag= 99.0 min

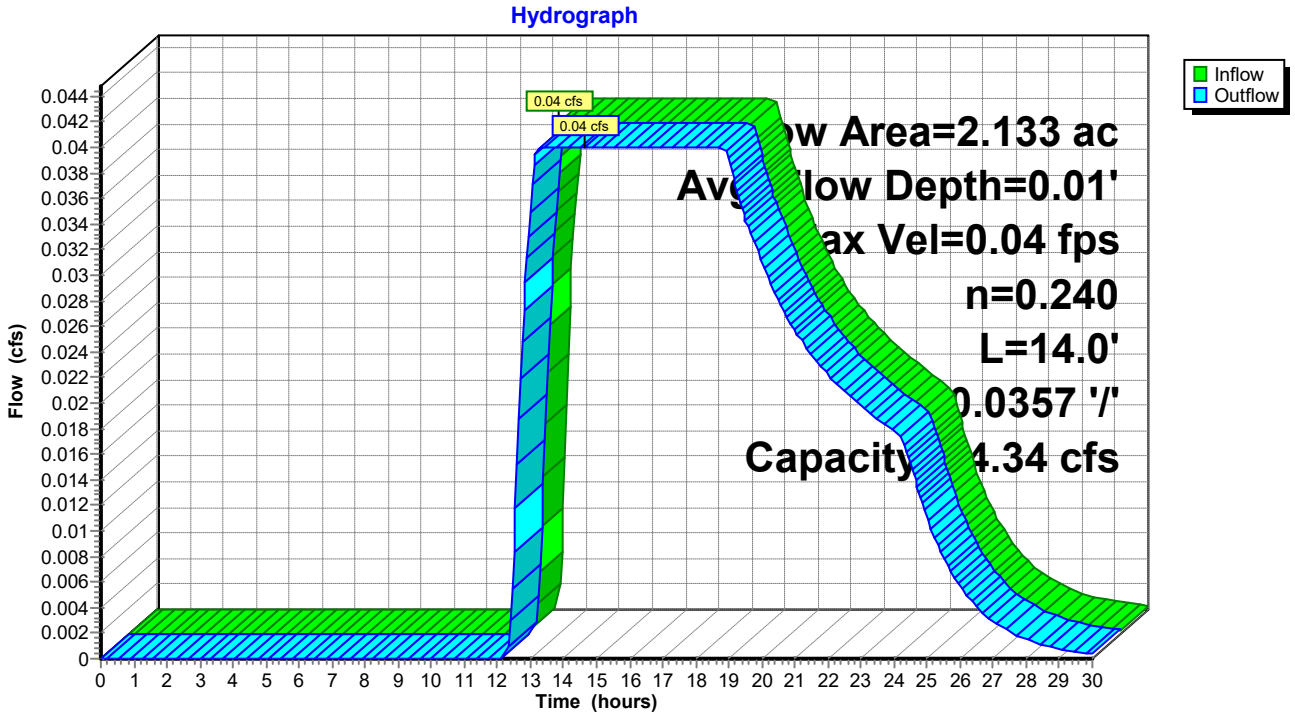
Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.04 fps, Min. Travel Time= 6.3 min
Avg. Velocity = 0.04 fps, Avg. Travel Time= 6.6 min

Peak Storage= 15 cf @ 14.55 hrs
Average Depth at Peak Storage= 0.01'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 74.34 cfs

200.00' x 0.50' deep channel, n= 0.240 Sheet flow over Dense Grass
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 14.0' Slope= 0.0357 '/'
Inlet Invert= 815.00', Outlet Invert= 814.50'

‡

Reach 3R: GRASS

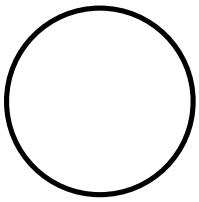


Summary for Reach 4R: (new Reach)

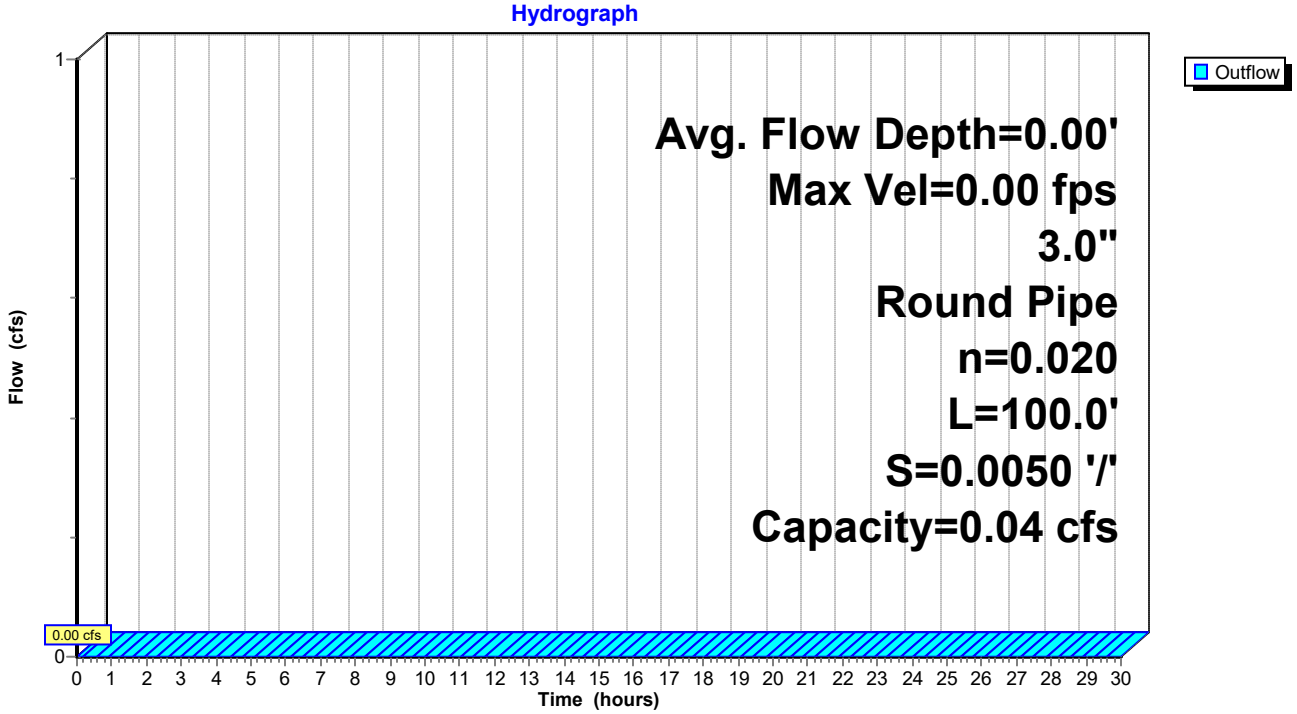
[43] Hint: Has no inflow (Outflow=Zero)

Bank-Full Depth= 0.25' Flow Area= 0.0 sf, Capacity= 0.04 cfs

3.0" Round Pipe
n= 0.020 Corrugated PE, corrugated interior
Length= 100.0' Slope= 0.0050 '/'
Inlet Invert= 0.00', Outlet Invert= -0.50'



Reach 4R: (new Reach)



Summary for Reach 5R: WOODS

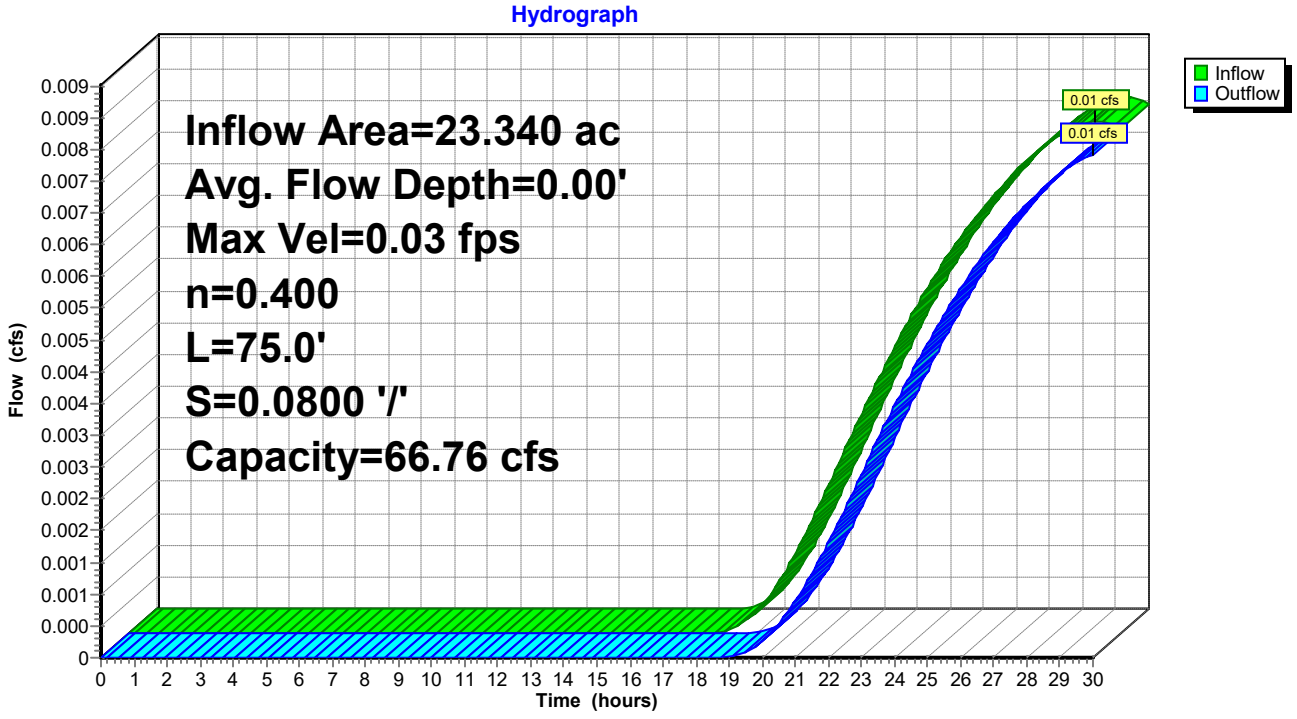
Inflow Area = 23.340 ac, 0.97% Impervious, Inflow Depth > 0.00" for 2-Year event
Inflow = 0.01 cfs @ 29.24 hrs, Volume= 0.005 af
Outflow = 0.01 cfs @ 30.00 hrs, Volume= 0.004 af, Atten= 2%, Lag= 45.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.03 fps, Min. Travel Time= 40.7 min
Avg. Velocity = 0.03 fps, Avg. Travel Time= 40.7 min

Peak Storage= 19 cf @ 29.89 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 66.76 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 75.0' Slope= 0.0800 '/'
Inlet Invert= 868.00', Outlet Invert= 862.00'

Reach 5R: WOODS



Summary for Reach 6R: WOODS

[61] Hint: Exceeded Reach 3R outlet invert by 0.01' @ 19.05 hrs

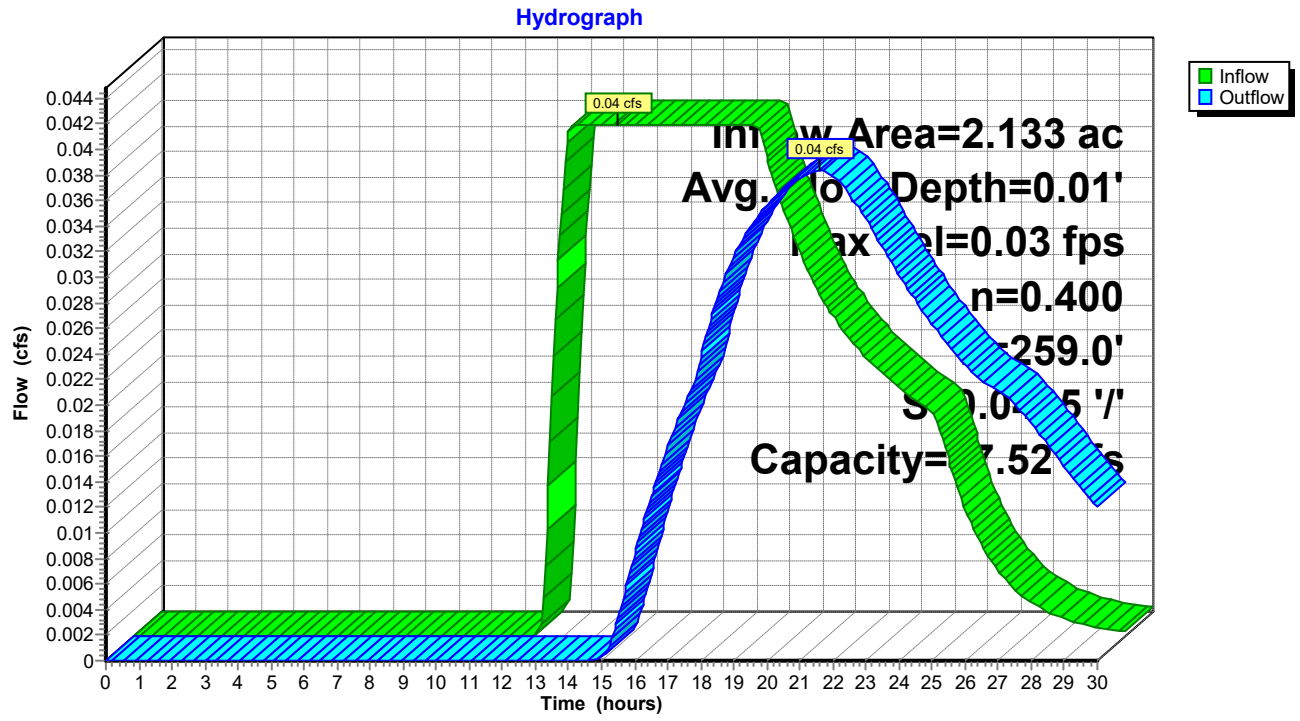
Inflow Area = 2.133 ac, 0.00% Impervious, Inflow Depth > 0.19" for 2-Year event
Inflow = 0.04 cfs @ 14.65 hrs, Volume= 0.034 af
Outflow = 0.04 cfs @ 21.60 hrs, Volume= 0.030 af, Atten= 4%, Lag= 416.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.03 fps, Min. Travel Time= 151.5 min
Avg. Velocity = 0.02 fps, Avg. Travel Time= 180.6 min

Peak Storage= 349 cf @ 19.07 hrs
Average Depth at Peak Storage= 0.01'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 47.52 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 259.0' Slope= 0.0405 '/'
Inlet Invert= 814.50', Outlet Invert= 804.00'

Reach 6R: WOODS



Summary for Reach 7R: GRASS

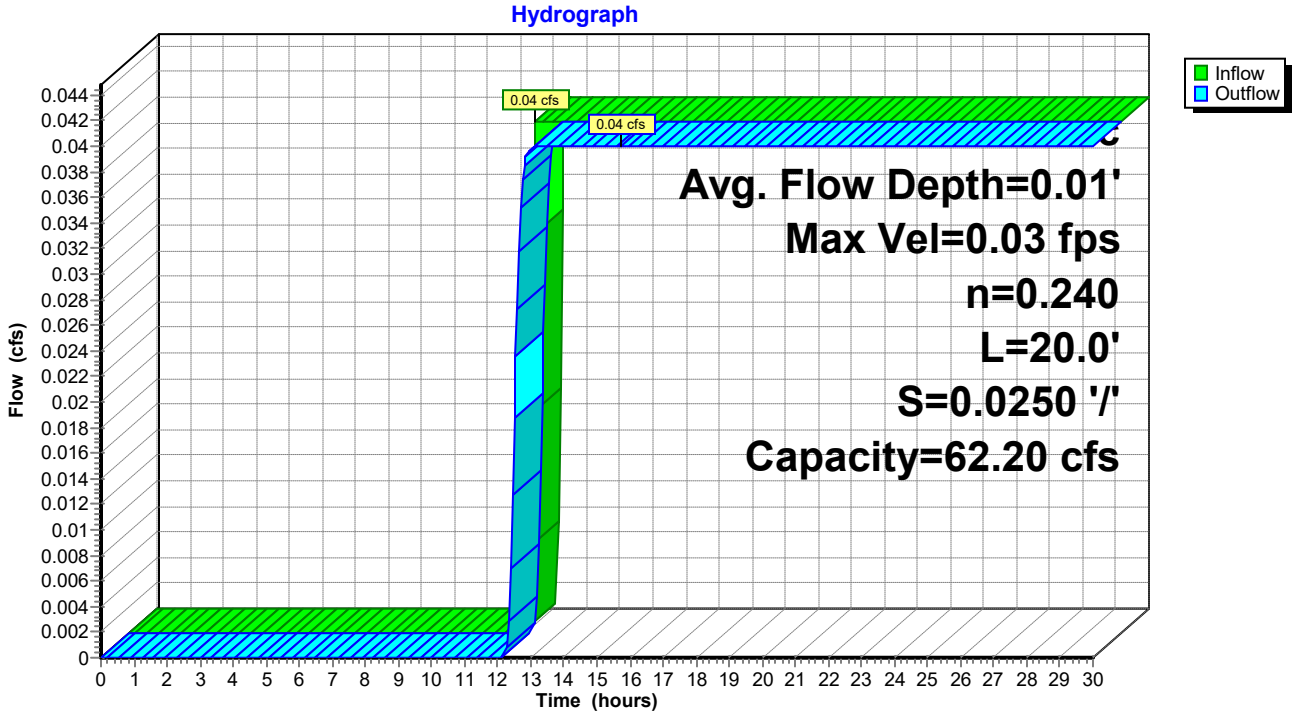
Inflow Area = 5.809 ac, 0.00% Impervious, Inflow Depth > 0.12" for 2-Year event
Inflow = 0.04 cfs @ 12.30 hrs, Volume= 0.059 af
Outflow = 0.04 cfs @ 15.70 hrs, Volume= 0.058 af, Atten= 0%, Lag= 204.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.03 fps, Min. Travel Time= 9.9 min
Avg. Velocity = 0.03 fps, Avg. Travel Time= 9.9 min

Peak Storage= 24 cf @ 15.50 hrs
Average Depth at Peak Storage= 0.01'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 62.20 cfs

200.00' x 0.50' deep channel, n= 0.240 Sheet flow over Dense Grass
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 20.0' Slope= 0.0250 '/'
Inlet Invert= 805.50', Outlet Invert= 805.00'

Reach 7R: GRASS



Summary for Reach 8R: WOODS

[62] Hint: Exceeded Reach 7R OUTLET depth by 0.01' @ 29.95 hrs

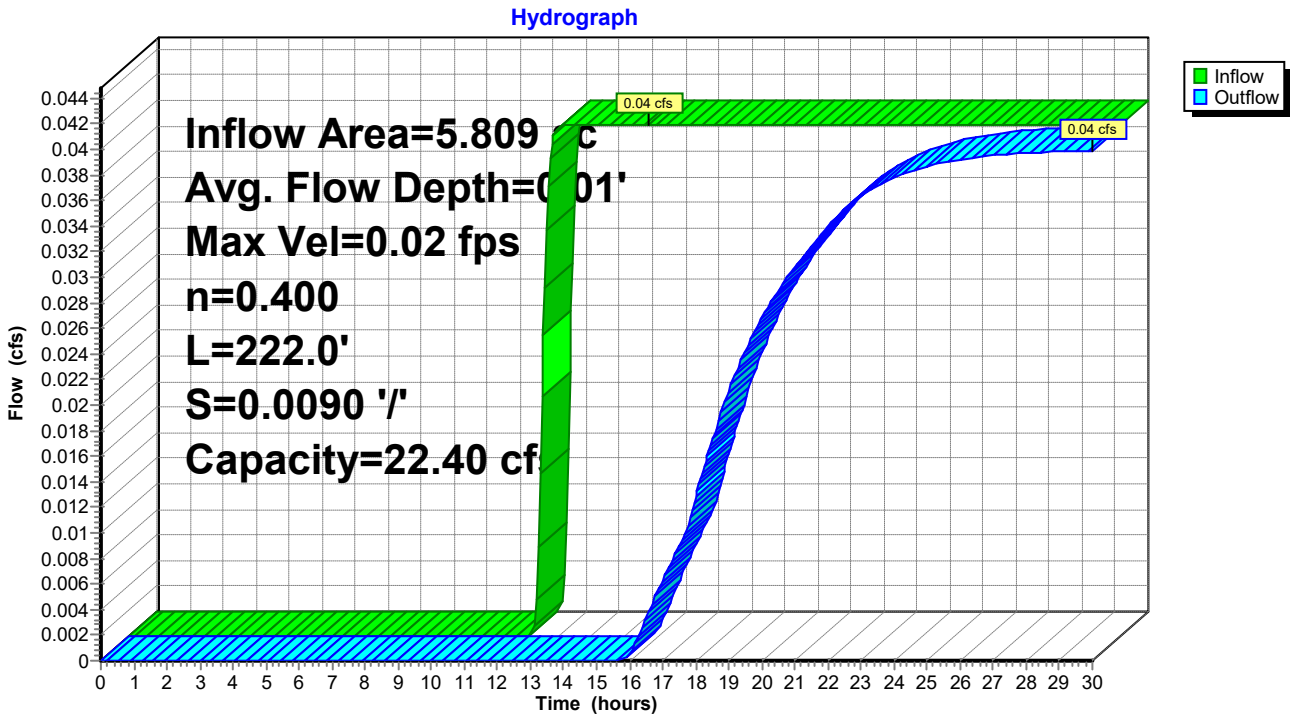
Inflow Area = 5.809 ac, 0.00% Impervious, Inflow Depth > 0.12" for 2-Year event
Inflow = 0.04 cfs @ 15.70 hrs, Volume= 0.058 af
Outflow = 0.04 cfs @ 30.00 hrs, Volume= 0.035 af, Atten= 0%, Lag= 858.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.02 fps, Min. Travel Time= 206.4 min
Avg. Velocity = 0.02 fps, Avg. Travel Time= 228.8 min

Peak Storage= 495 cf @ 30.00 hrs
Average Depth at Peak Storage= 0.01'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 22.40 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 222.0' Slope= 0.0090 '/'
Inlet Invert= 805.00', Outlet Invert= 803.00'

Reach 8R: WOODS



Summary for Reach 9R: WOODS-2

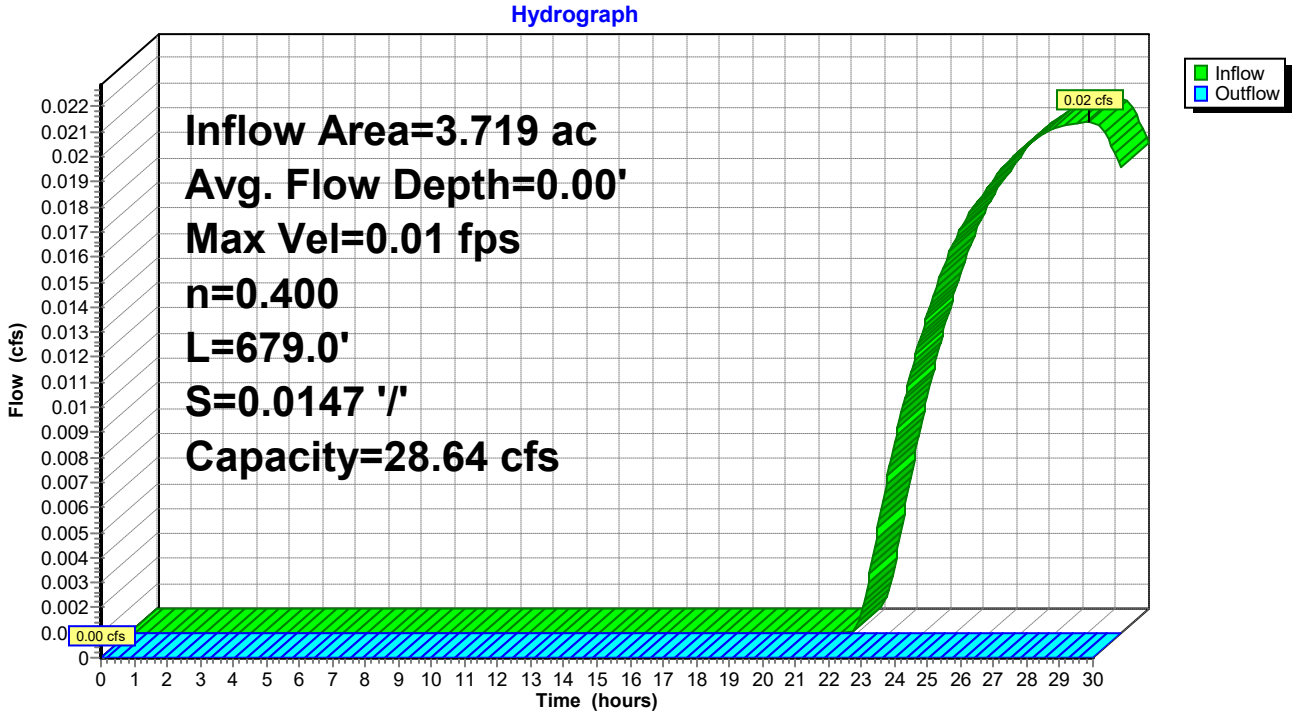
Inflow Area = 3.719 ac, 16.80% Impervious, Inflow Depth > 0.03" for 2-Year event
Inflow = 0.02 cfs @ 29.05 hrs, Volume= 0.010 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.01 fps, Min. Travel Time= 858.6 min
Avg. Velocity = 0.01 fps, Avg. Travel Time= 858.6 min

Peak Storage= 355 cf @ 30.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 28.64 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 679.0' Slope= 0.0147 '/'
Inlet Invert= 858.00', Outlet Invert= 848.00'

Reach 9R: WOODS-2



Summary for Reach 10R: WOODS-1

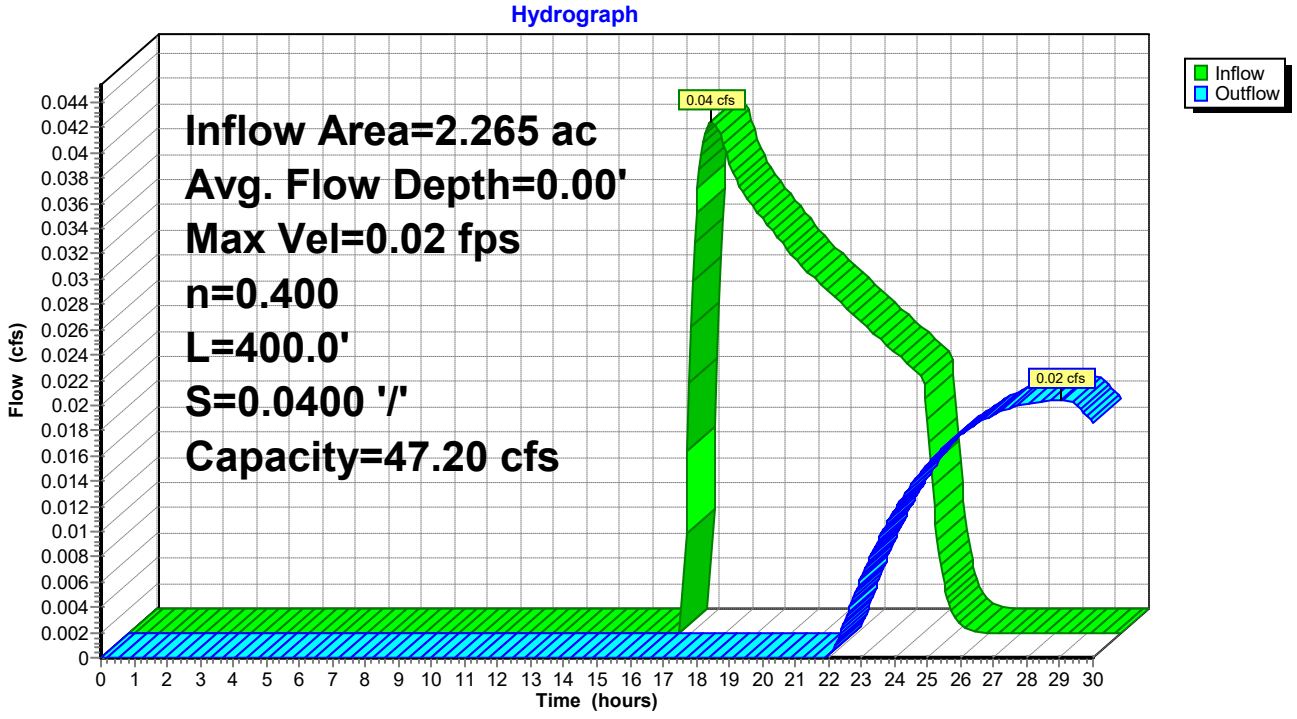
Inflow Area = 2.265 ac, 25.48% Impervious, Inflow Depth = 0.09" for 2-Year event
Inflow = 0.04 cfs @ 17.61 hrs, Volume= 0.018 af
Outflow = 0.02 cfs @ 29.06 hrs, Volume= 0.010 af, Atten= 50%, Lag= 687.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.02 fps, Min. Travel Time= 306.9 min
Avg. Velocity = 0.02 fps, Avg. Travel Time= 306.9 min

Peak Storage= 376 cf @ 23.95 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 47.20 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 400.0' Slope= 0.0400 '/'
Inlet Invert= 874.00', Outlet Invert= 858.00'

Reach 10R: WOODS-1



Summary for Reach 11R: WOODS-3

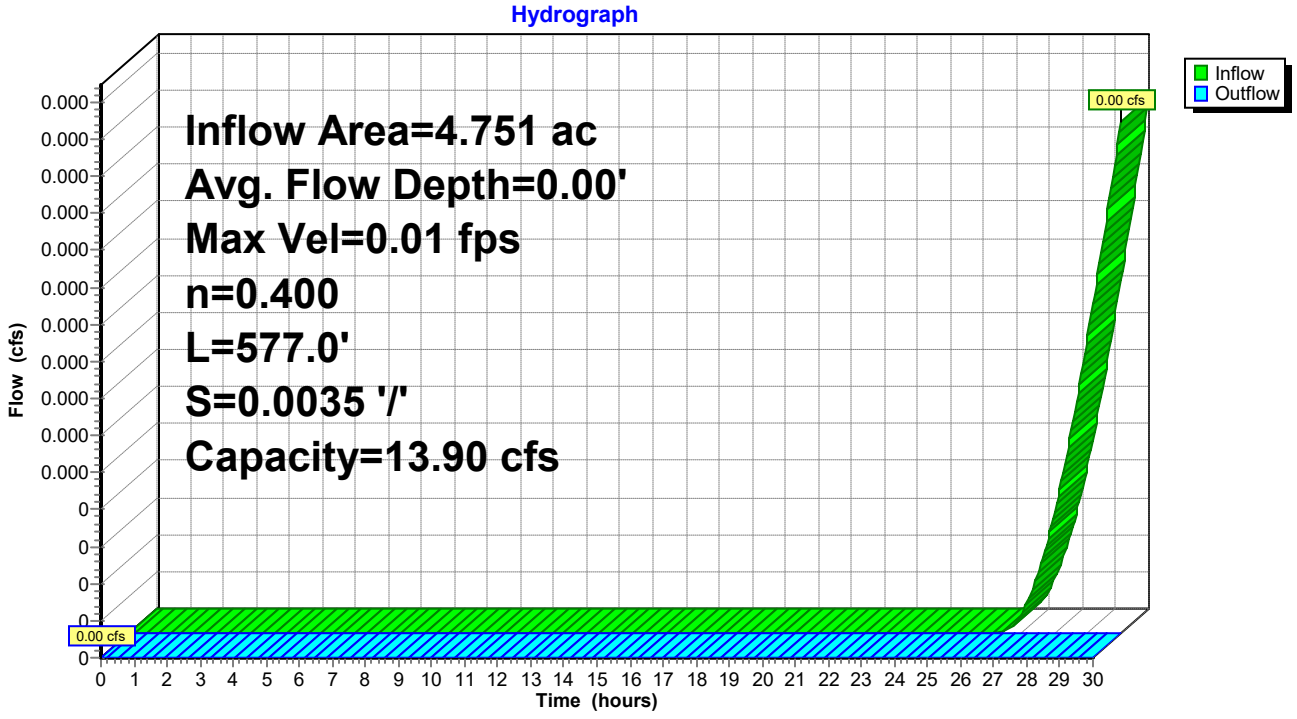
Inflow Area = 4.751 ac, 13.84% Impervious, Inflow Depth > 0.00" for 2-Year event
Inflow = 0.00 cfs @ 30.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.01 fps, Min. Travel Time= 1,503.9 min
Avg. Velocity = 0.01 fps, Avg. Travel Time= 1,503.9 min

Peak Storage= 1 cf @ 30.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 13.90 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 577.0' Slope= 0.0035 '/'
Inlet Invert= 848.00', Outlet Invert= 846.00'

Reach 11R: WOODS-3



Summary for Reach 12R: GRASS

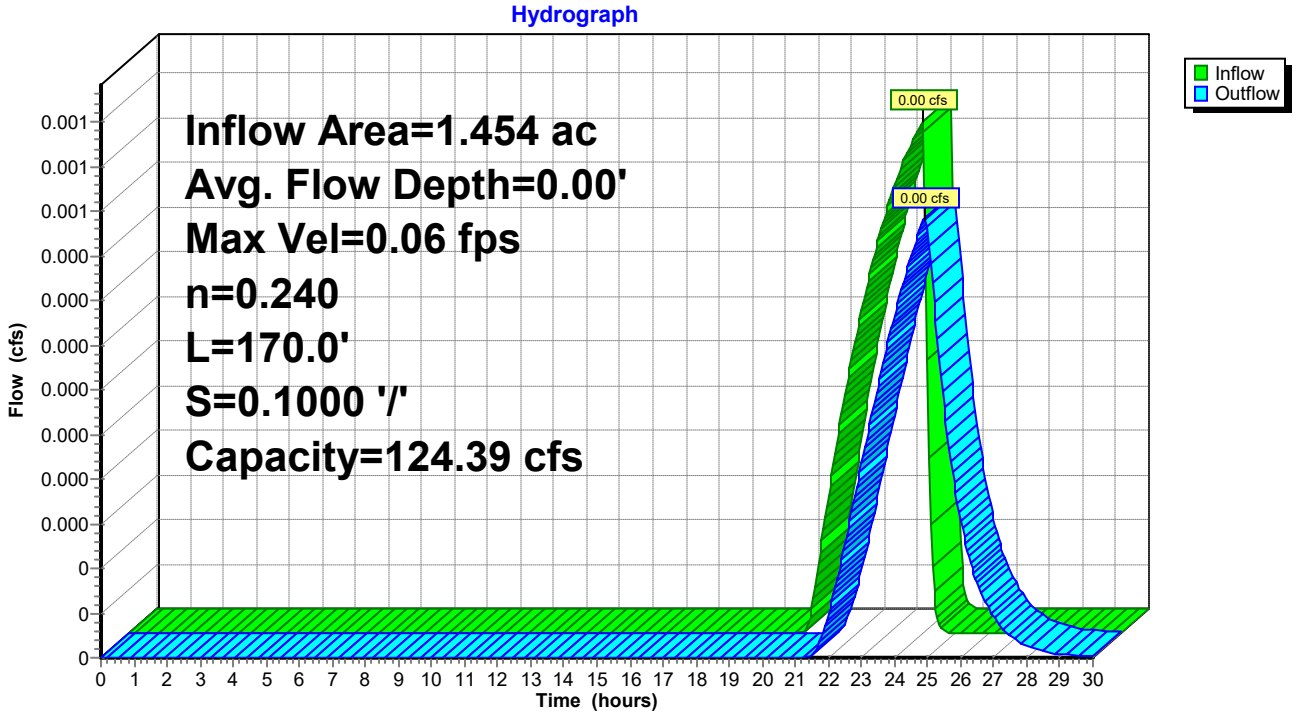
Inflow Area = 1.454 ac, 3.28% Impervious, Inflow Depth = 0.00" for 2-Year event
Inflow = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 24.90 hrs, Volume= 0.000 af, Atten= 14%, Lag= 53.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.06 fps, Min. Travel Time= 49.5 min
Avg. Velocity = 0.06 fps, Avg. Travel Time= 49.5 min

Peak Storage= 1 cf @ 24.08 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 124.39 cfs

200.00' x 0.50' deep channel, n= 0.240 Sheet flow over Dense Grass
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 170.0' Slope= 0.1000 '/'
Inlet Invert= 883.00', Outlet Invert= 866.00'

Reach 12R: GRASS



Summary for Reach 13R: WOODS-4

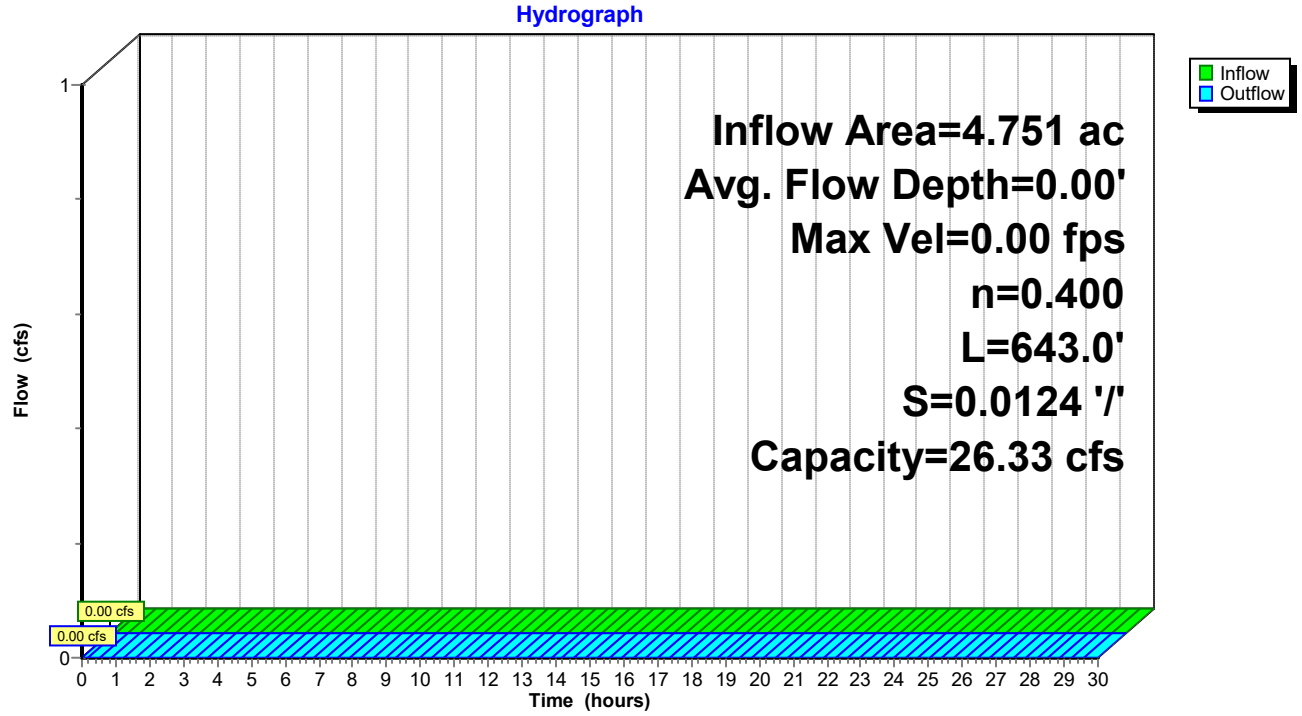
Inflow Area = 4.751 ac, 13.84% Impervious, Inflow Depth = 0.00" for 2-Year event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 26.33 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 643.0' Slope= 0.0124 '/'
Inlet Invert= 846.00', Outlet Invert= 838.00'

Reach 13R: WOODS-4



Summary for Reach 14R: WOODS

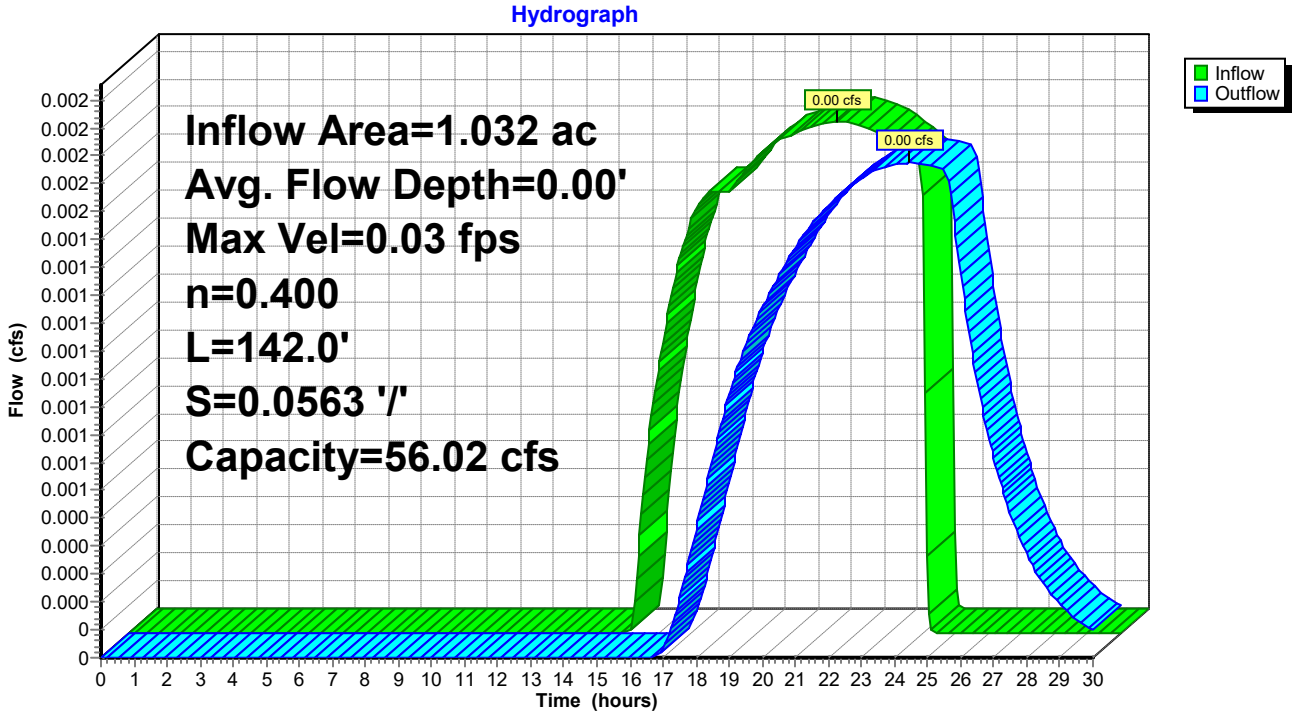
Inflow Area = 1.032 ac, 3.16% Impervious, Inflow Depth = 0.01" for 2-Year event
Inflow = 0.00 cfs @ 21.41 hrs, Volume= 0.001 af
Outflow = 0.00 cfs @ 24.47 hrs, Volume= 0.001 af, Atten= 3%, Lag= 183.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.03 fps, Min. Travel Time= 91.8 min
Avg. Velocity = 0.03 fps, Avg. Travel Time= 91.8 min

Peak Storage= 10 cf @ 22.94 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 56.02 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 142.0' Slope= 0.0563 '/'
Inlet Invert= 864.00', Outlet Invert= 856.00'

Reach 14R: WOODS



Summary for Reach 15R: WOODS

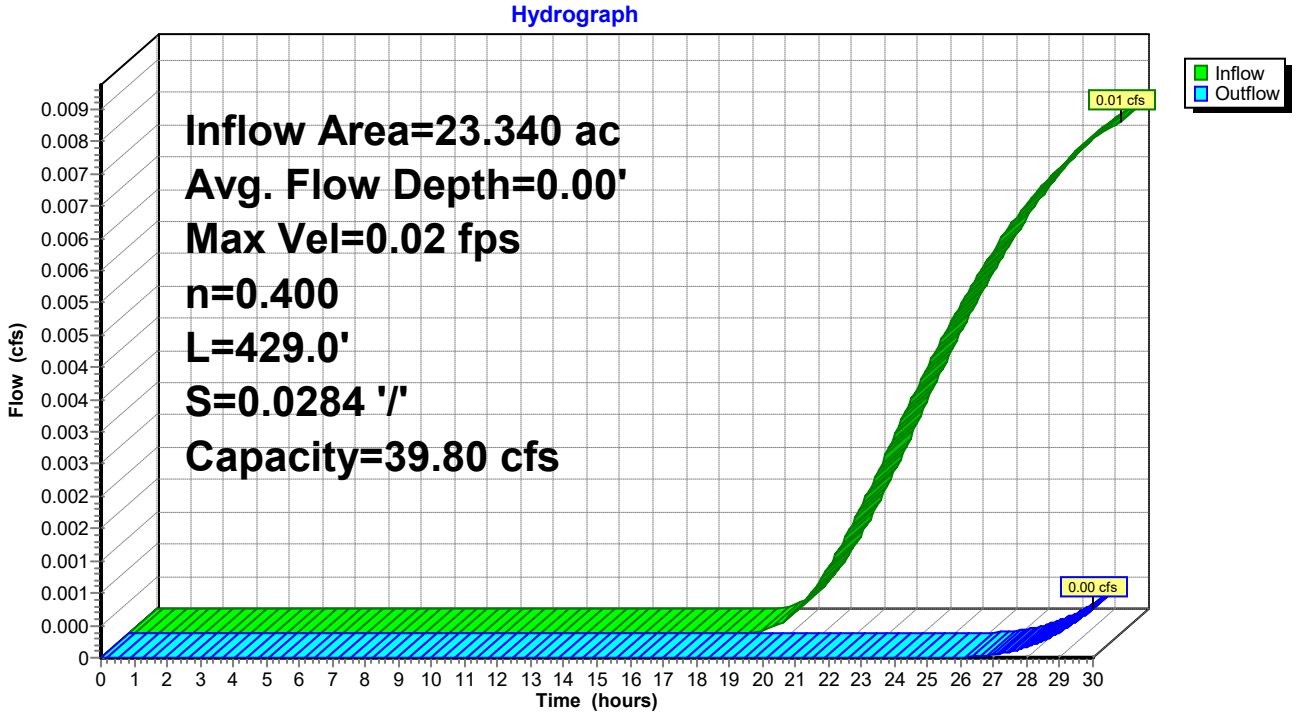
Inflow Area = 23.340 ac, 0.97% Impervious, Inflow Depth > 0.00" for 2-Year event
Inflow = 0.01 cfs @ 30.00 hrs, Volume= 0.004 af
Outflow = 0.00 cfs @ 30.00 hrs, Volume= 0.000 af, Atten= 90%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.02 fps, Min. Travel Time= 390.4 min
Avg. Velocity = 0.02 fps, Avg. Travel Time= 390.4 min

Peak Storage= 103 cf @ 30.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 39.80 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 429.0' Slope= 0.0284 '/'
Inlet Invert= 862.00', Outlet Invert= 849.80'

Reach 15R: WOODS



Summary for Reach 16R: WOODS

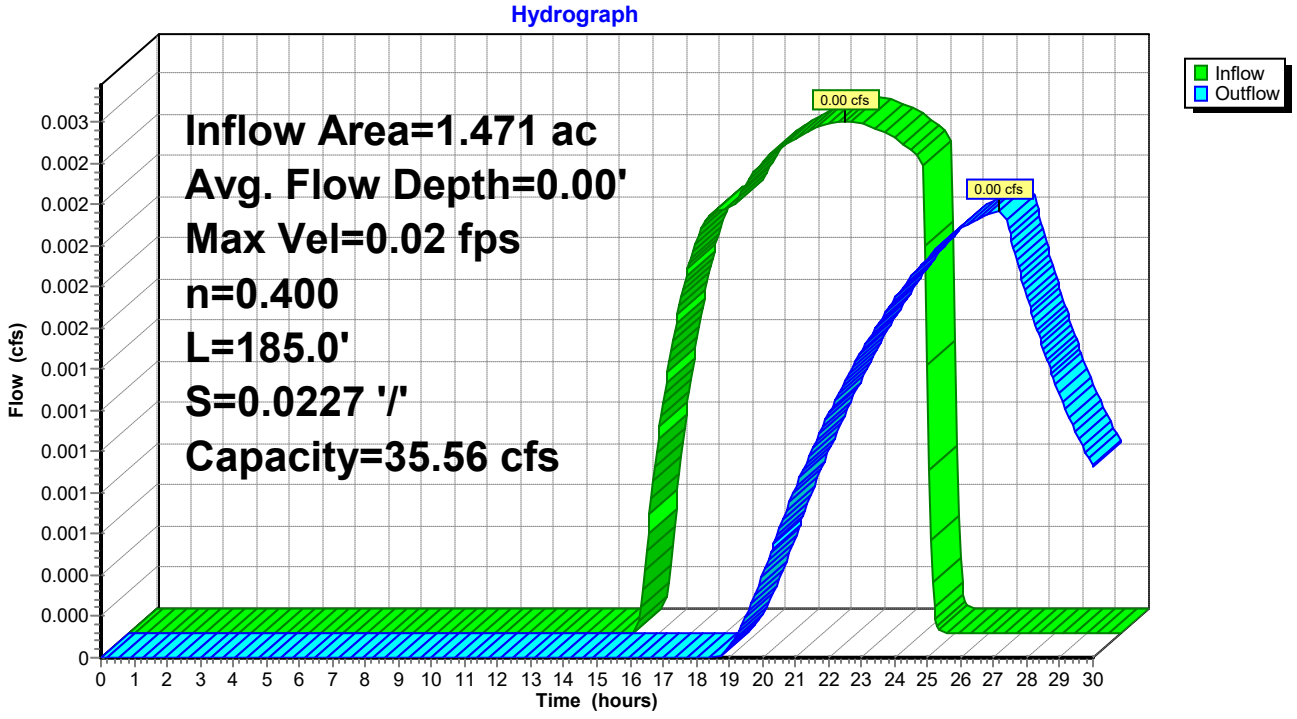
Inflow Area = 1.471 ac, 0.00% Impervious, Inflow Depth = 0.01" for 2-Year event
Inflow = 0.00 cfs @ 21.65 hrs, Volume= 0.002 af
Outflow = 0.00 cfs @ 27.18 hrs, Volume= 0.001 af, Atten= 13%, Lag= 332.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.02 fps, Min. Travel Time= 188.4 min
Avg. Velocity = 0.02 fps, Avg. Travel Time= 188.4 min

Peak Storage= 25 cf @ 24.05 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 35.56 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 185.0' Slope= 0.0227 '/'
Inlet Invert= 854.00', Outlet Invert= 849.80'

Reach 16R: WOODS



Summary for Reach 17R: WOODS-2

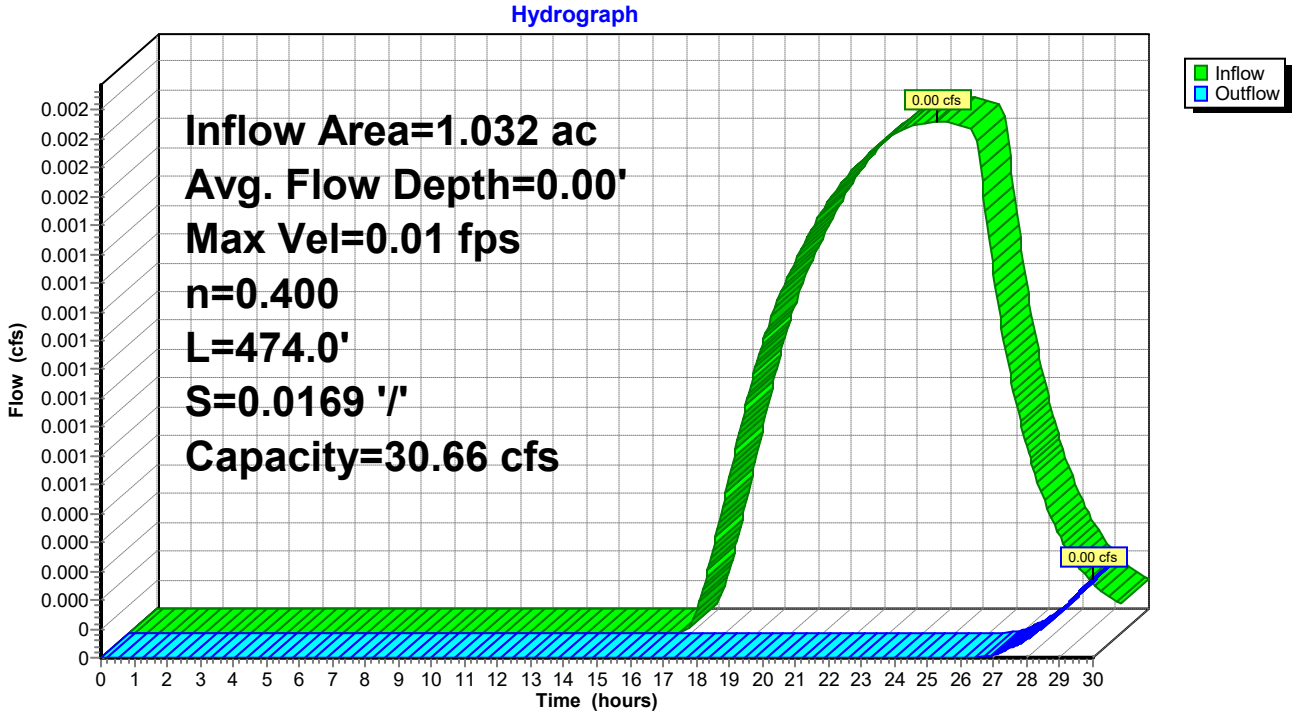
Inflow Area = 1.032 ac, 3.16% Impervious, Inflow Depth > 0.01" for 2-Year event
Inflow = 0.00 cfs @ 24.47 hrs, Volume= 0.001 af
Outflow = 0.00 cfs @ 30.00 hrs, Volume= 0.000 af, Atten= 84%, Lag= 332.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.01 fps, Min. Travel Time= 559.9 min
Avg. Velocity = 0.01 fps, Avg. Travel Time= 559.9 min

Peak Storage= 30 cf @ 26.64 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 30.66 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 474.0' Slope= 0.0169 '/'
Inlet Invert= 856.00', Outlet Invert= 848.00'

Reach 17R: WOODS-2



Summary for Reach 18R: WOODS-4

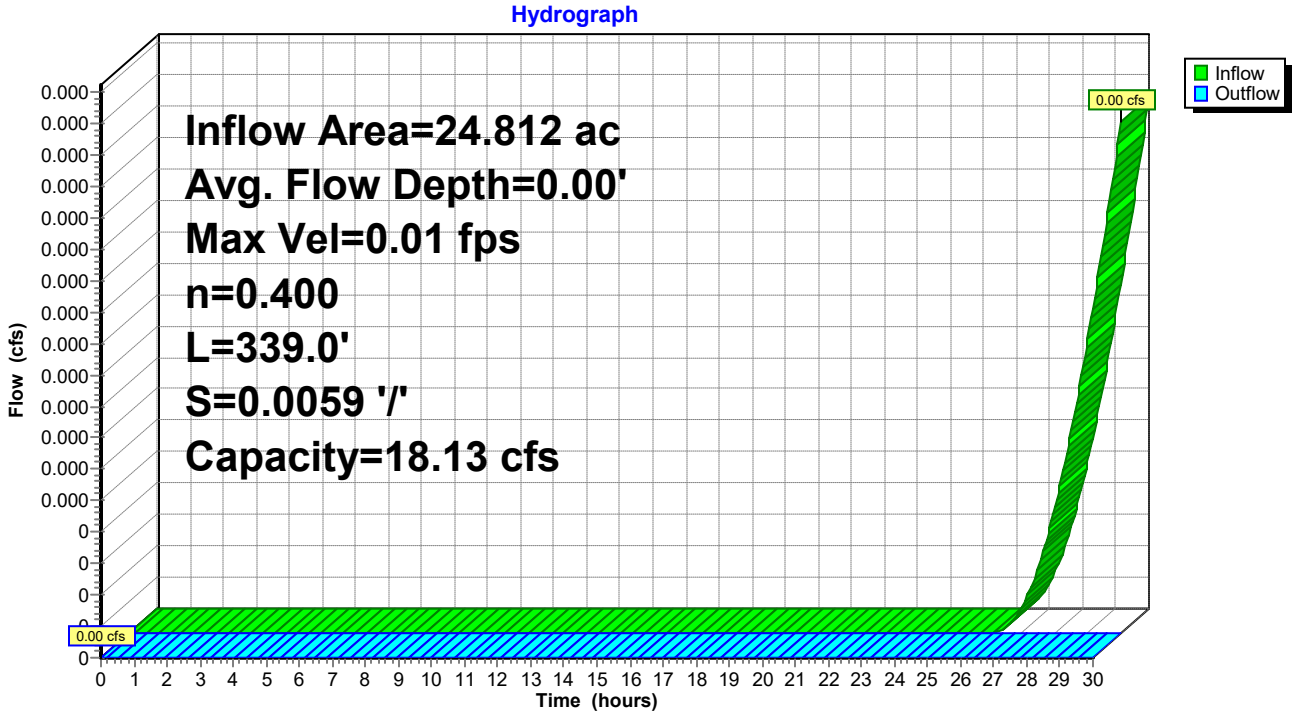
Inflow Area = 24.812 ac, 0.91% Impervious, Inflow Depth > 0.00" for 2-Year event
Inflow = 0.00 cfs @ 30.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.01 fps, Min. Travel Time= 677.3 min
Avg. Velocity = 0.01 fps, Avg. Travel Time= 677.3 min

Peak Storage= 1 cf @ 30.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 18.13 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 339.0' Slope= 0.0059 '/'
Inlet Invert= 840.00', Outlet Invert= 838.00'

Reach 18R: WOODS-4



Summary for Reach CB-A: TO DMH-X

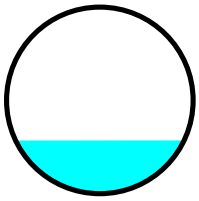
[52] Hint: Inlet/Outlet conditions not evaluated

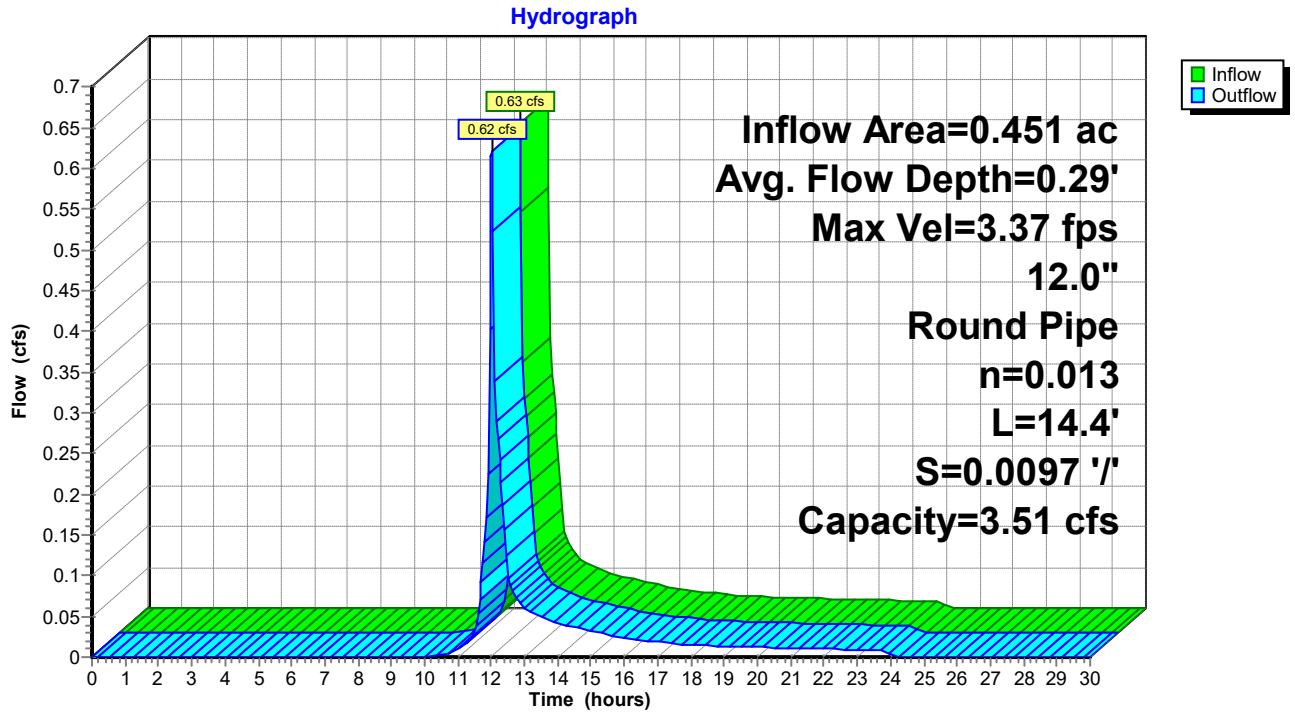
Inflow Area = 0.451 ac, 43.07% Impervious, Inflow Depth = 1.07" for 2-Year event
Inflow = 0.63 cfs @ 12.01 hrs, Volume= 0.040 af
Outflow = 0.62 cfs @ 12.01 hrs, Volume= 0.040 af, Atten= 1%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.37 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.25 fps, Avg. Travel Time= 0.2 min

Peak Storage= 3 cf @ 12.01 hrs
Average Depth at Peak Storage= 0.29'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.51 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 14.4' Slope= 0.0097 '/'
Inlet Invert= 901.29', Outlet Invert= 901.15'





Summary for Reach CB-B: TO DMH-A

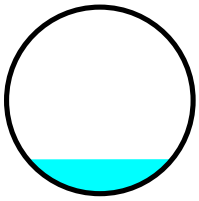
[52] Hint: Inlet/Outlet conditions not evaluated

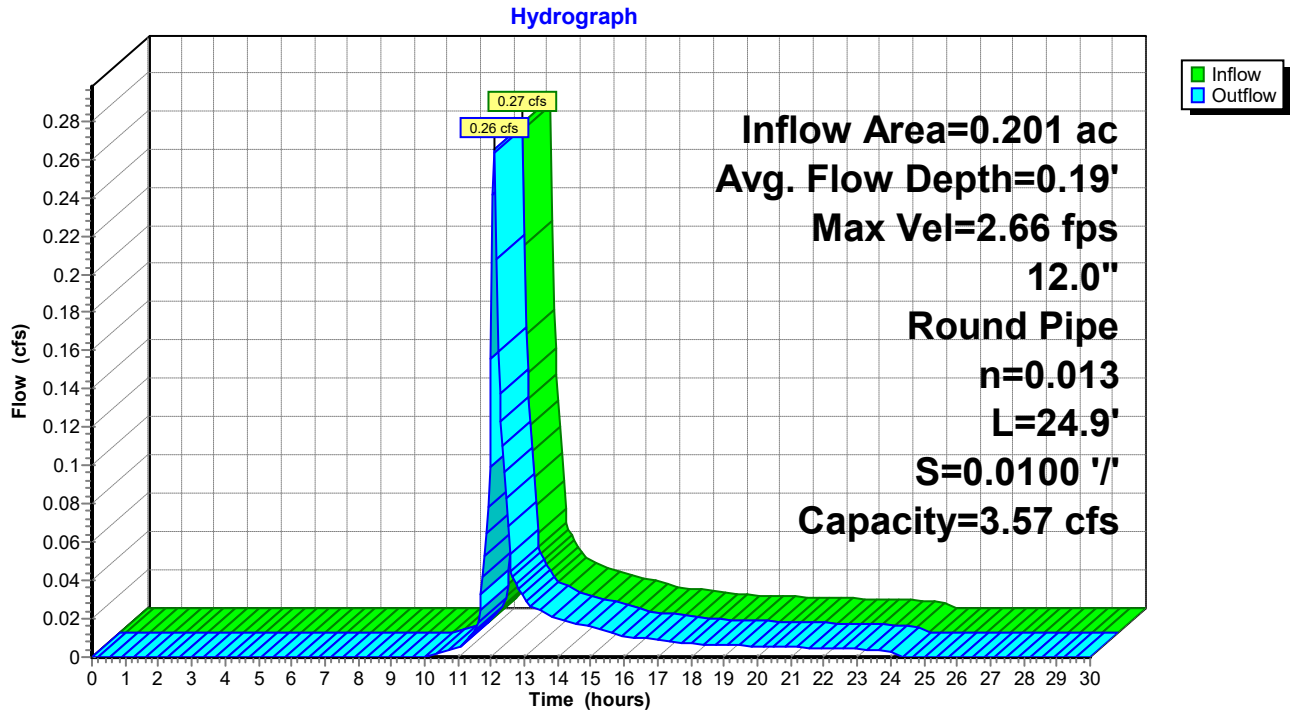
Inflow Area = 0.201 ac, 47.12% Impervious, Inflow Depth = 1.15" for 2-Year event
Inflow = 0.27 cfs @ 12.08 hrs, Volume= 0.019 af
Outflow = 0.26 cfs @ 12.09 hrs, Volume= 0.019 af, Atten= 0%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.66 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 1.00 fps, Avg. Travel Time= 0.4 min

Peak Storage= 2 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.19'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.57 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 24.9' Slope= 0.0100 '/'
Inlet Invert= 902.74', Outlet Invert= 902.49'





Summary for Reach CB-D: TO DMH-B

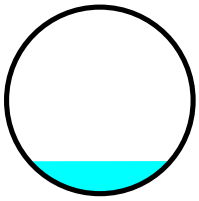
[52] Hint: Inlet/Outlet conditions not evaluated

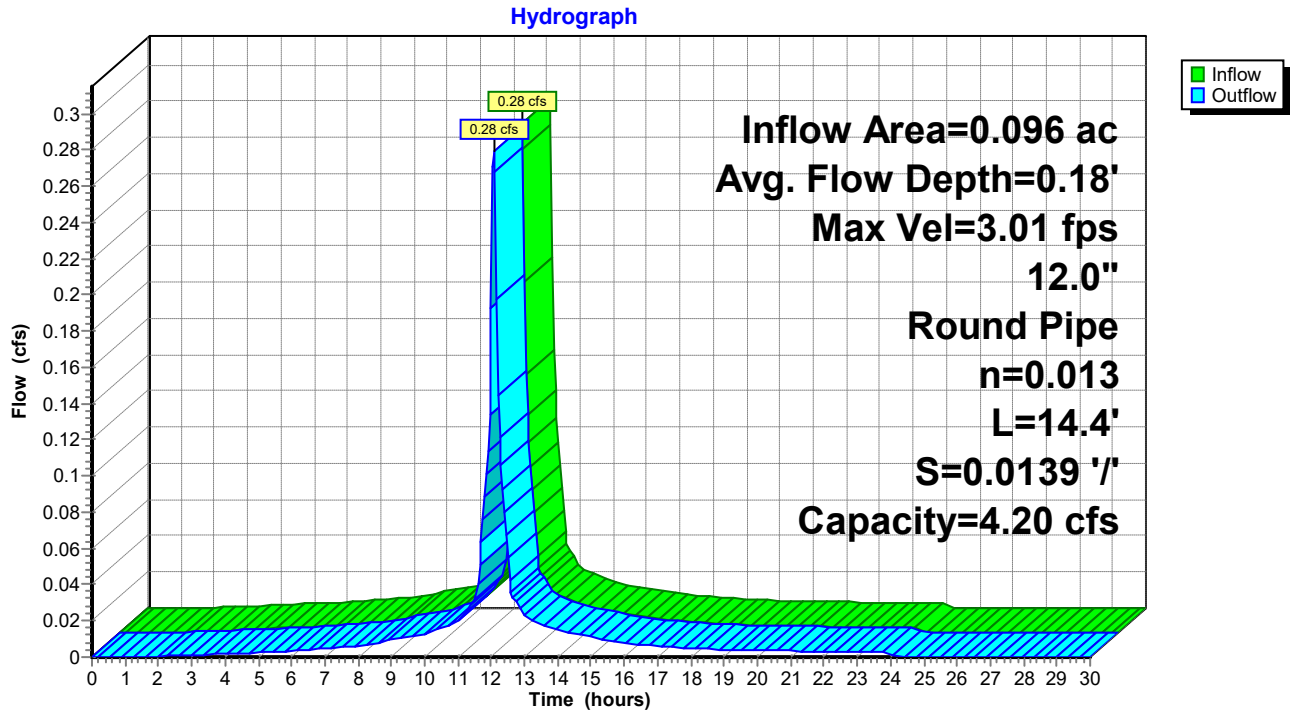
Inflow Area = 0.096 ac,100.00% Impervious, Inflow Depth = 2.77" for 2-Year event
Inflow = 0.28 cfs @ 12.07 hrs, Volume= 0.022 af
Outflow = 0.28 cfs @ 12.07 hrs, Volume= 0.022 af, Atten= 1%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.01 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 0.99 fps, Avg. Travel Time= 0.2 min

Peak Storage= 1 cf @ 12.07 hrs
Average Depth at Peak Storage= 0.18'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 4.20 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 14.4' Slope= 0.0139 '/'
Inlet Invert= 899.93', Outlet Invert= 899.73'





Summary for Reach CB-E: TO DMH-B

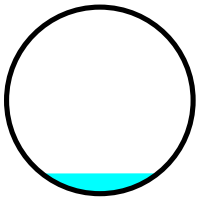
[52] Hint: Inlet/Outlet conditions not evaluated

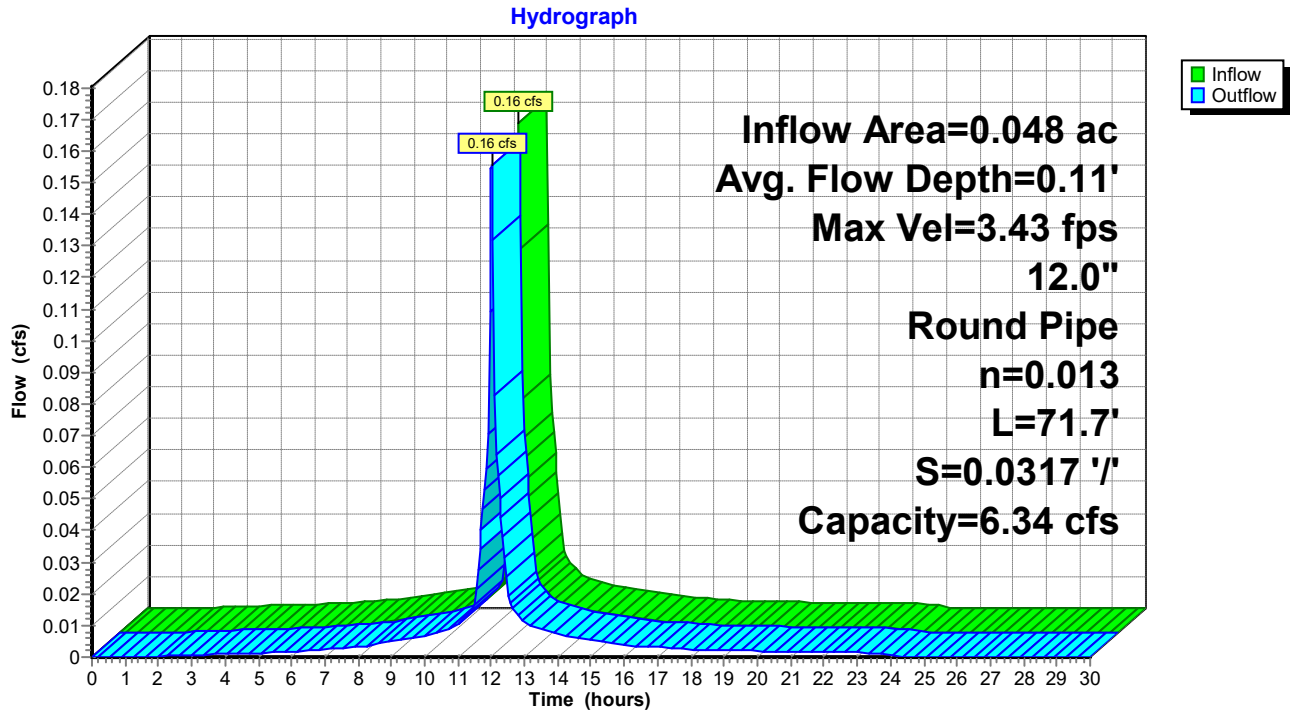
Inflow Area = 0.048 ac,100.00% Impervious, Inflow Depth = 2.77" for 2-Year event
Inflow = 0.16 cfs @ 12.00 hrs, Volume= 0.011 af
Outflow = 0.16 cfs @ 12.01 hrs, Volume= 0.011 af, Atten= 3%, Lag= 0.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.43 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 1.10 fps, Avg. Travel Time= 1.1 min

Peak Storage= 3 cf @ 12.00 hrs
Average Depth at Peak Storage= 0.11'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 6.34 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 71.7' Slope= 0.0317 '/'
Inlet Invert= 902.00', Outlet Invert= 899.73'





Summary for Reach DCB-C: TO DMH-A

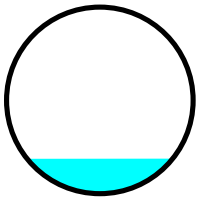
[52] Hint: Inlet/Outlet conditions not evaluated

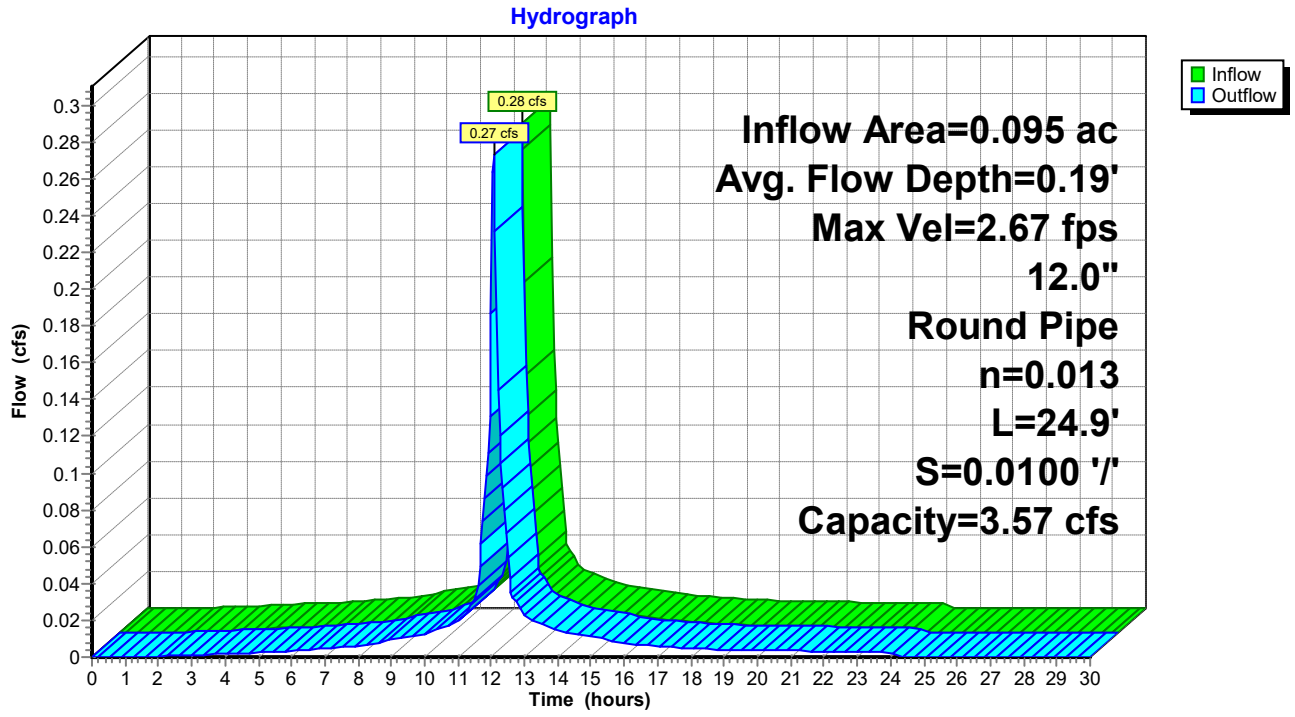
Inflow Area = 0.095 ac,100.00% Impervious, Inflow Depth = 2.77" for 2-Year event
Inflow = 0.28 cfs @ 12.07 hrs, Volume= 0.022 af
Outflow = 0.27 cfs @ 12.08 hrs, Volume= 0.022 af, Atten= 1%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.67 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 0.88 fps, Avg. Travel Time= 0.5 min

Peak Storage= 3 cf @ 12.07 hrs
Average Depth at Peak Storage= 0.19'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.57 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 24.9' Slope= 0.0100 '/'
Inlet Invert= 902.74', Outlet Invert= 902.49'





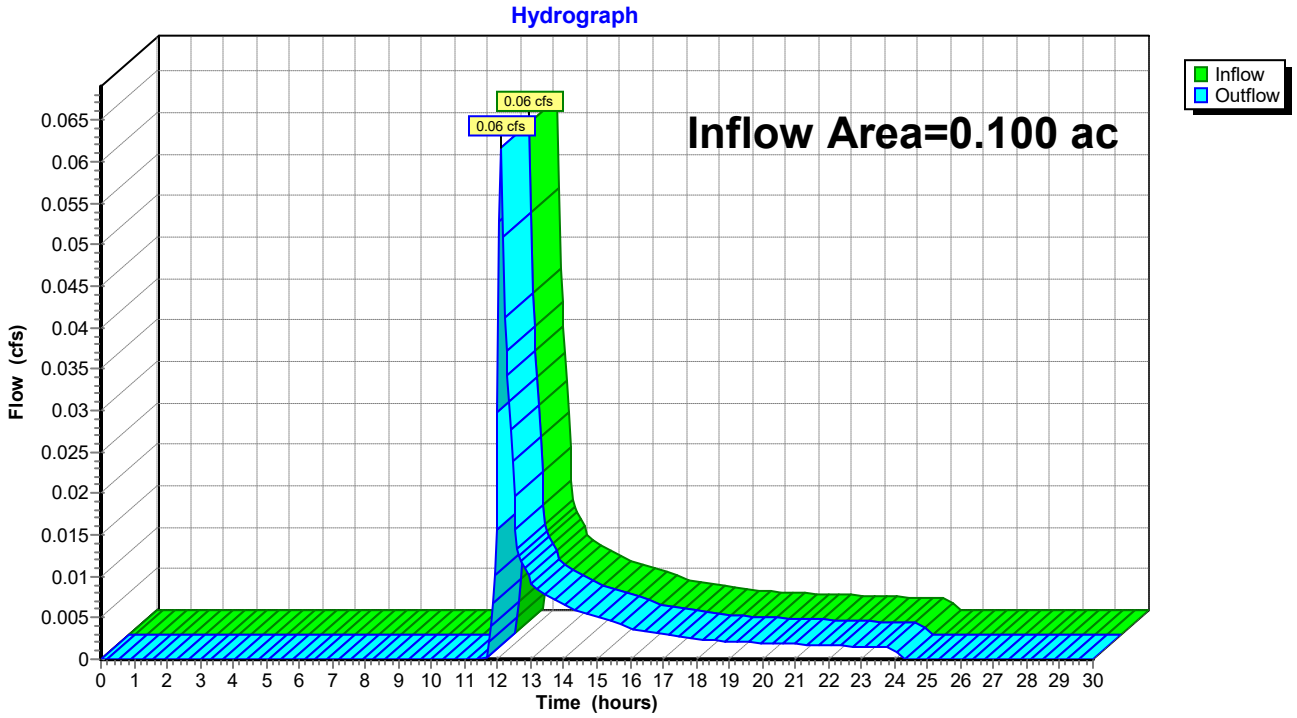
Summary for Reach DCB-F: (new Reach)

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.100 ac, 49.10% Impervious, Inflow Depth = 0.63" for 2-Year event
Inflow = 0.06 cfs @ 12.10 hrs, Volume= 0.005 af
Outflow = 0.06 cfs @ 12.10 hrs, Volume= 0.005 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DCB-F: (new Reach)



Summary for Reach DCB1: TO DMH1

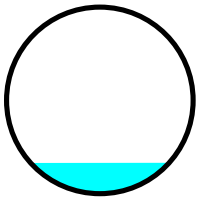
[52] Hint: Inlet/Outlet conditions not evaluated

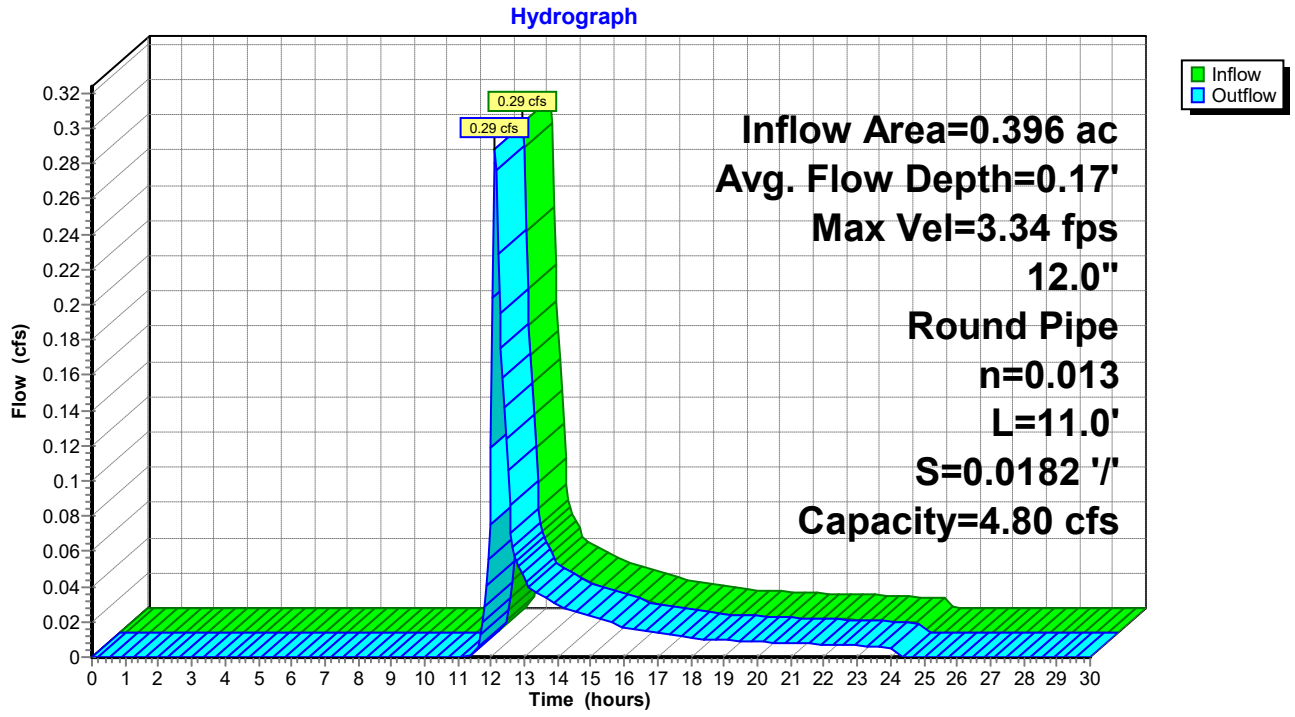
Inflow Area = 0.396 ac, 26.33% Impervious, Inflow Depth = 0.75" for 2-Year event
Inflow = 0.29 cfs @ 12.12 hrs, Volume= 0.025 af
Outflow = 0.29 cfs @ 12.12 hrs, Volume= 0.025 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.34 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.40 fps, Avg. Travel Time= 0.1 min

Peak Storage= 1 cf @ 12.12 hrs
Average Depth at Peak Storage= 0.17'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 4.80 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 11.0' Slope= 0.0182 '/'
Inlet Invert= 896.60', Outlet Invert= 896.40'





Summary for Reach DCB2: TO DMH#1

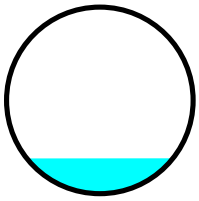
[52] Hint: Inlet/Outlet conditions not evaluated

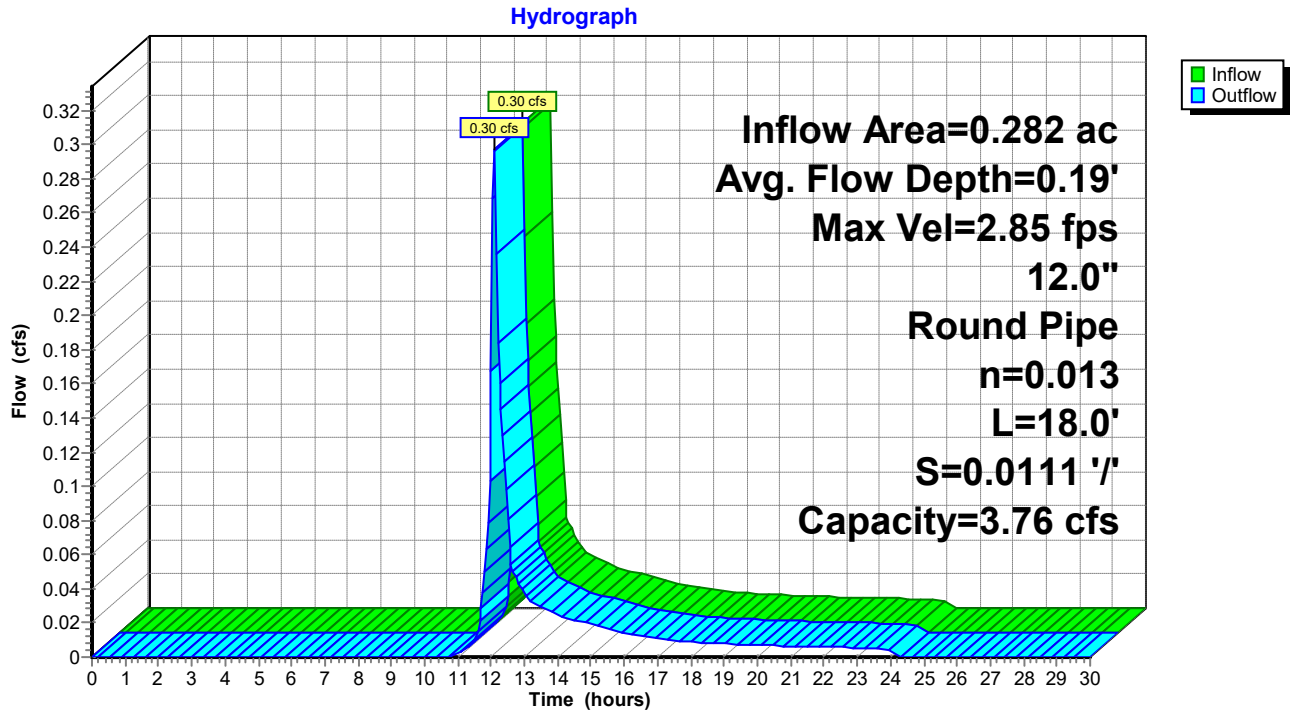
Inflow Area = 0.282 ac, 37.25% Impervious, Inflow Depth = 0.95" for 2-Year event
Inflow = 0.30 cfs @ 12.09 hrs, Volume= 0.022 af
Outflow = 0.30 cfs @ 12.09 hrs, Volume= 0.022 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.85 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.11 fps, Avg. Travel Time= 0.3 min

Peak Storage= 2 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.19'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.76 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 18.0' Slope= 0.0111 '/'
Inlet Invert= 896.60', Outlet Invert= 896.40'





Summary for Reach DMH-A: TO DMH-D

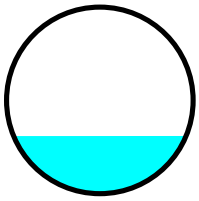
[52] Hint: Inlet/Outlet conditions not evaluated
[62] Hint: Exceeded Reach CB-B OUTLET depth by 0.03' @ 12.15 hrs
[62] Hint: Exceeded Reach DCB-C OUTLET depth by 0.03' @ 12.15 hrs

Inflow Area = 0.295 ac, 64.06% Impervious, Inflow Depth = 1.67" for 2-Year event
Inflow = 0.54 cfs @ 12.08 hrs, Volume= 0.041 af
Outflow = 0.50 cfs @ 12.13 hrs, Volume= 0.041 af, Atten= 7%, Lag= 3.1 min

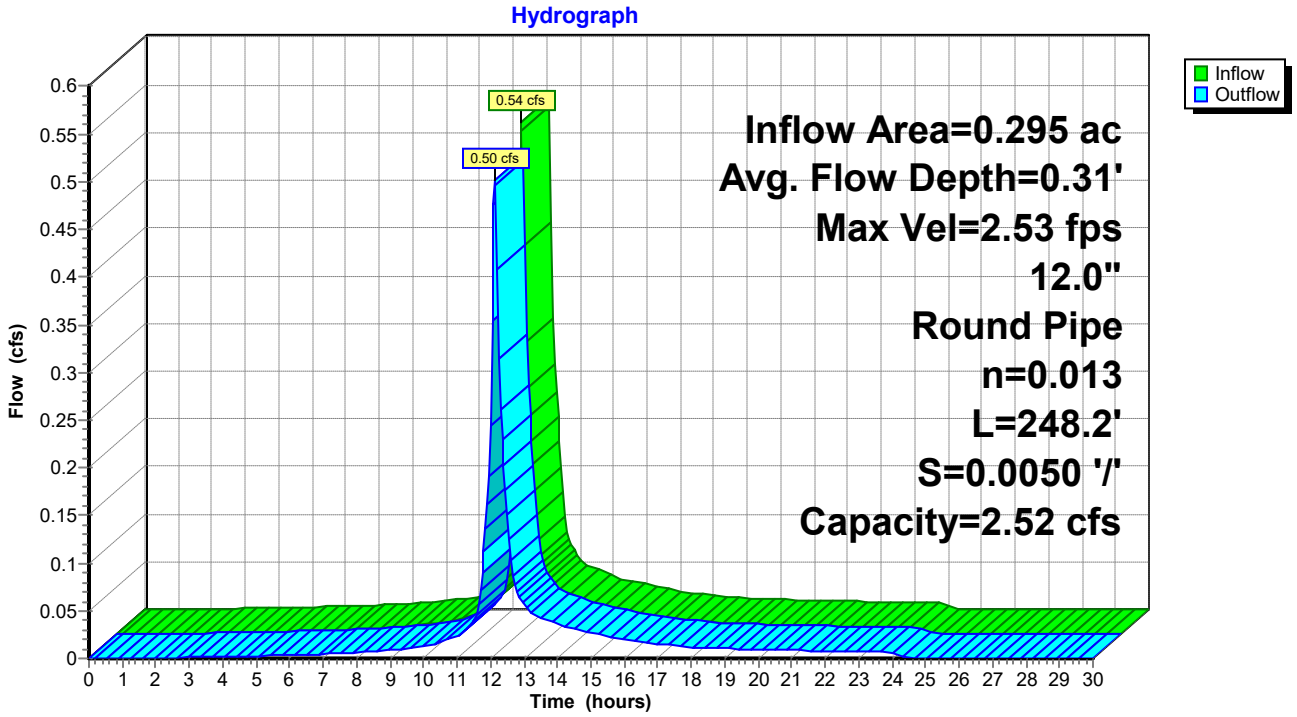
Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.53 fps, Min. Travel Time= 1.6 min
Avg. Velocity = 0.79 fps, Avg. Travel Time= 5.2 min

Peak Storage= 52 cf @ 12.10 hrs
Average Depth at Peak Storage= 0.31'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.52 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 248.2' Slope= 0.0050 '/'
Inlet Invert= 902.39', Outlet Invert= 901.15'



Reach DMH-A: TO DMH-D



Summary for Reach DMH-B: TO DMH-C

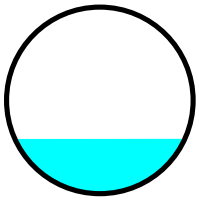
[52] Hint: Inlet/Outlet conditions not evaluated

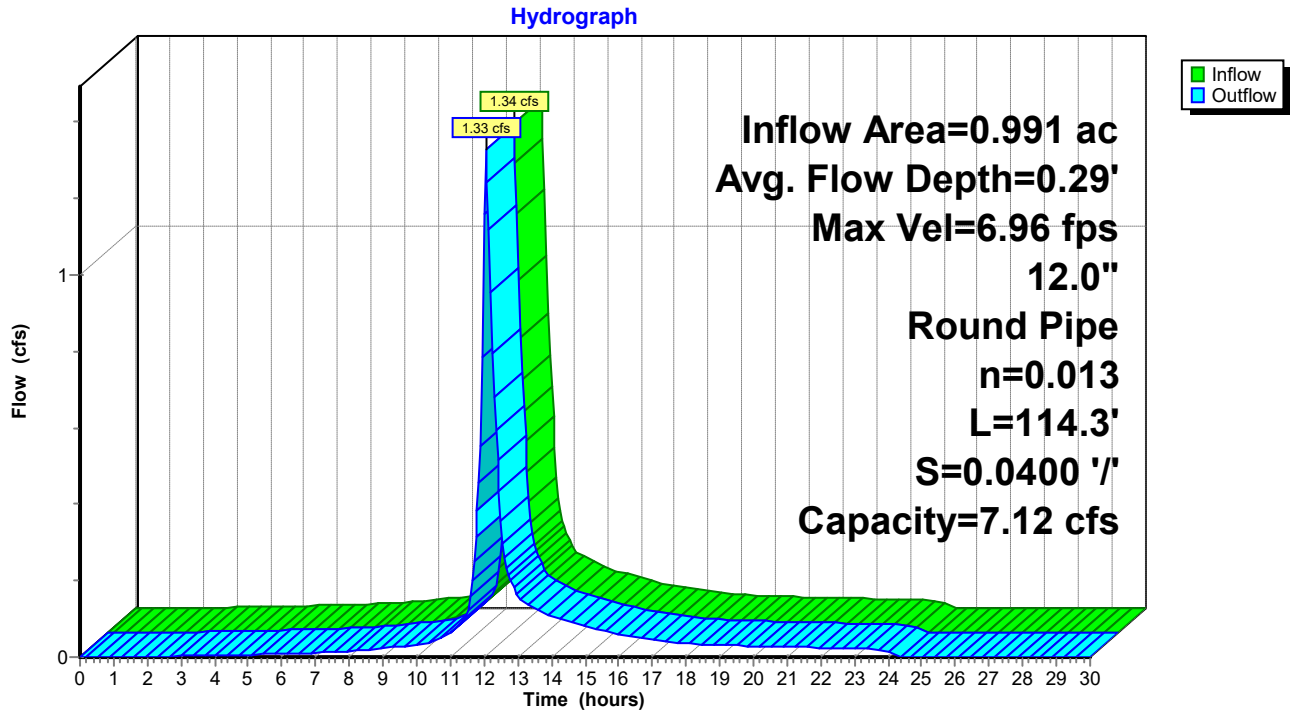
Inflow Area = 0.991 ac, 58.24% Impervious, Inflow Depth = 1.45" for 2-Year event
Inflow = 1.34 cfs @ 12.05 hrs, Volume= 0.120 af
Outflow = 1.33 cfs @ 12.06 hrs, Volume= 0.120 af, Atten= 0%, Lag= 0.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.96 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 2.26 fps, Avg. Travel Time= 0.8 min

Peak Storage= 22 cf @ 12.05 hrs
Average Depth at Peak Storage= 0.29'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 7.12 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 114.3' Slope= 0.0400 '/'
Inlet Invert= 894.99', Outlet Invert= 890.42'





Summary for Reach DMH-C: TO S. BASIN

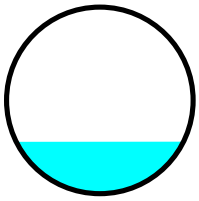
[52] Hint: Inlet/Outlet conditions not evaluated

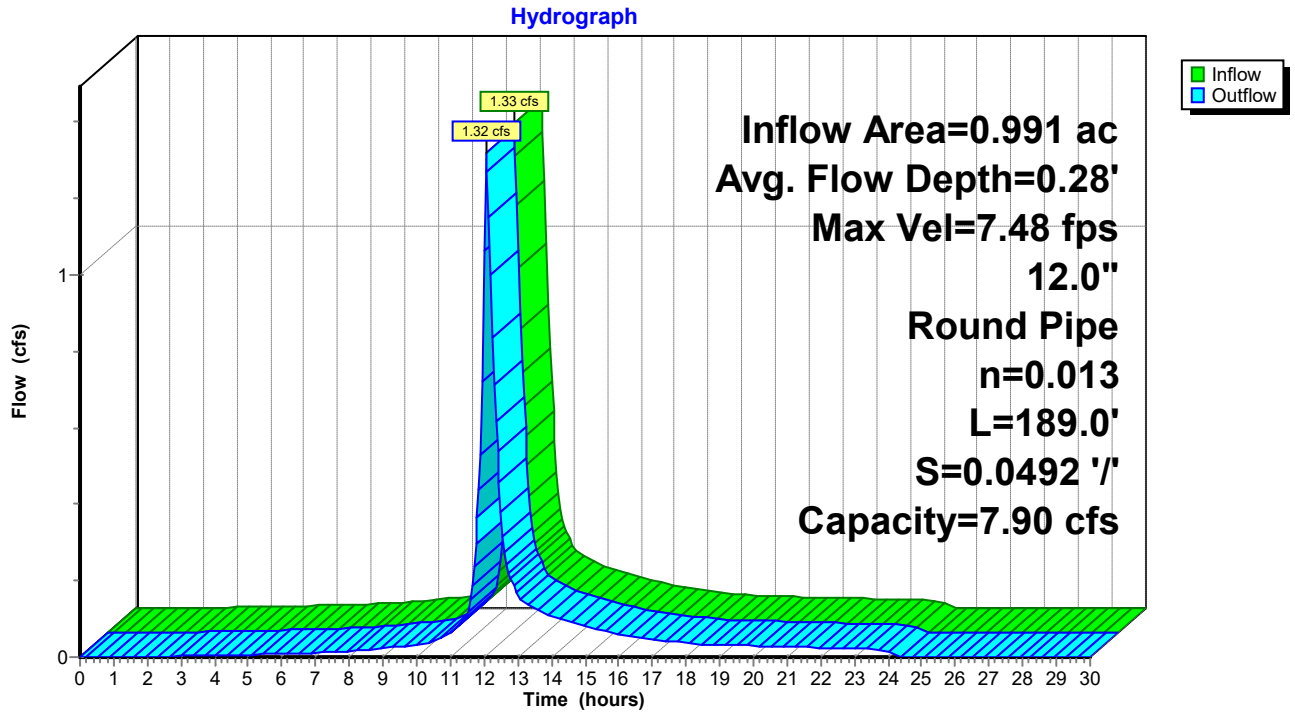
Inflow Area = 0.991 ac, 58.24% Impervious, Inflow Depth = 1.45" for 2-Year event
Inflow = 1.33 cfs @ 12.06 hrs, Volume= 0.120 af
Outflow = 1.32 cfs @ 12.07 hrs, Volume= 0.120 af, Atten= 1%, Lag= 0.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.48 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 2.43 fps, Avg. Travel Time= 1.3 min

Peak Storage= 34 cf @ 12.06 hrs
Average Depth at Peak Storage= 0.28'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 7.90 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 189.0' Slope= 0.0492 '/'
Inlet Invert= 888.30', Outlet Invert= 879.00'





Summary for Reach DMH-D: TO DMH-B

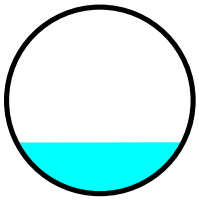
[52] Hint: Inlet/Outlet conditions not evaluated

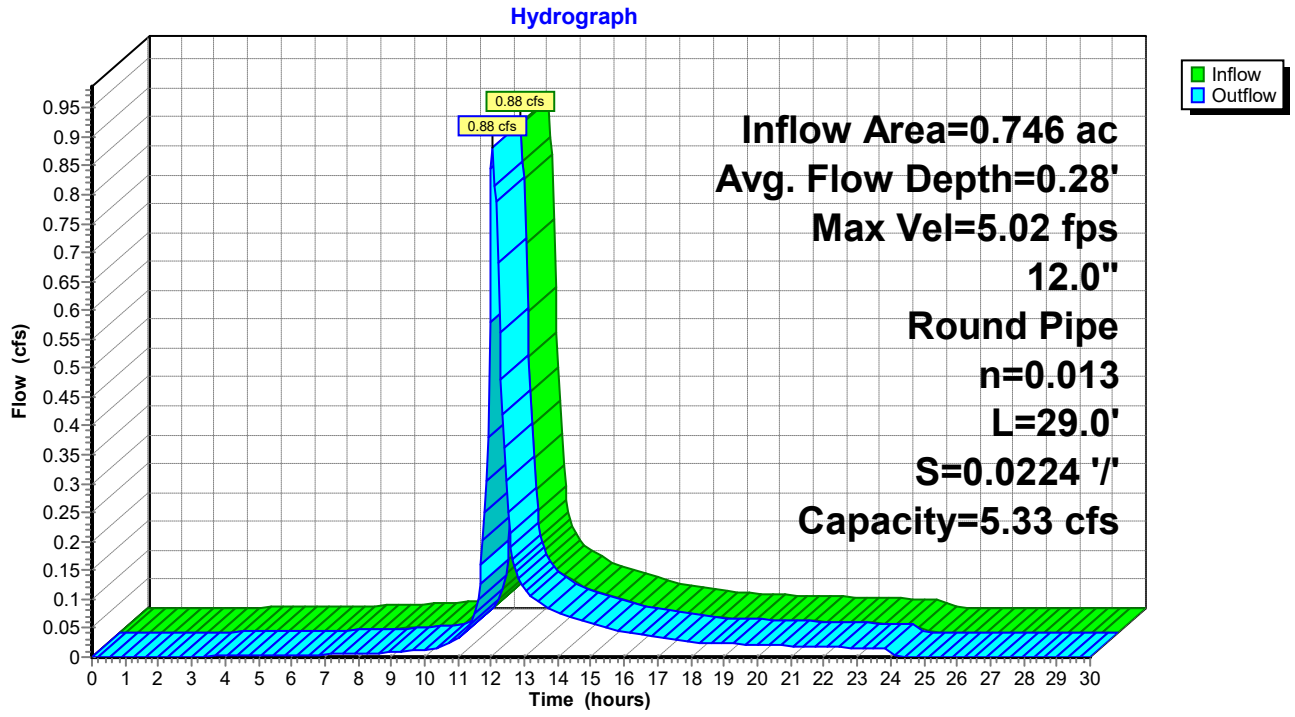
Inflow Area = 0.746 ac, 51.38% Impervious, Inflow Depth = 1.31" for 2-Year event
Inflow = 0.88 cfs @ 12.04 hrs, Volume= 0.081 af
Outflow = 0.88 cfs @ 12.04 hrs, Volume= 0.081 af, Atten= 0%, Lag= 0.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.02 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.61 fps, Avg. Travel Time= 0.3 min

Peak Storage= 5 cf @ 12.04 hrs
Average Depth at Peak Storage= 0.28'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 5.33 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 29.0' Slope= 0.0224 '/'
Inlet Invert= 900.38', Outlet Invert= 899.73'





Summary for Reach DMH1: TO DMH#2

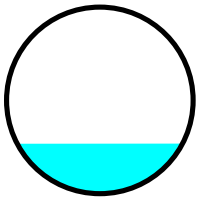
[52] Hint: Inlet/Outlet conditions not evaluated
[61] Hint: Exceeded Reach DCB1 outlet invert by 0.07' @ 12.10 hrs
[61] Hint: Exceeded Reach DCB2 outlet invert by 0.07' @ 12.10 hrs

Inflow Area = 0.678 ac, 30.87% Impervious, Inflow Depth = 0.83" for 2-Year event
Inflow = 0.58 cfs @ 12.11 hrs, Volume= 0.047 af
Outflow = 0.55 cfs @ 12.14 hrs, Volume= 0.047 af, Atten= 5%, Lag= 2.2 min

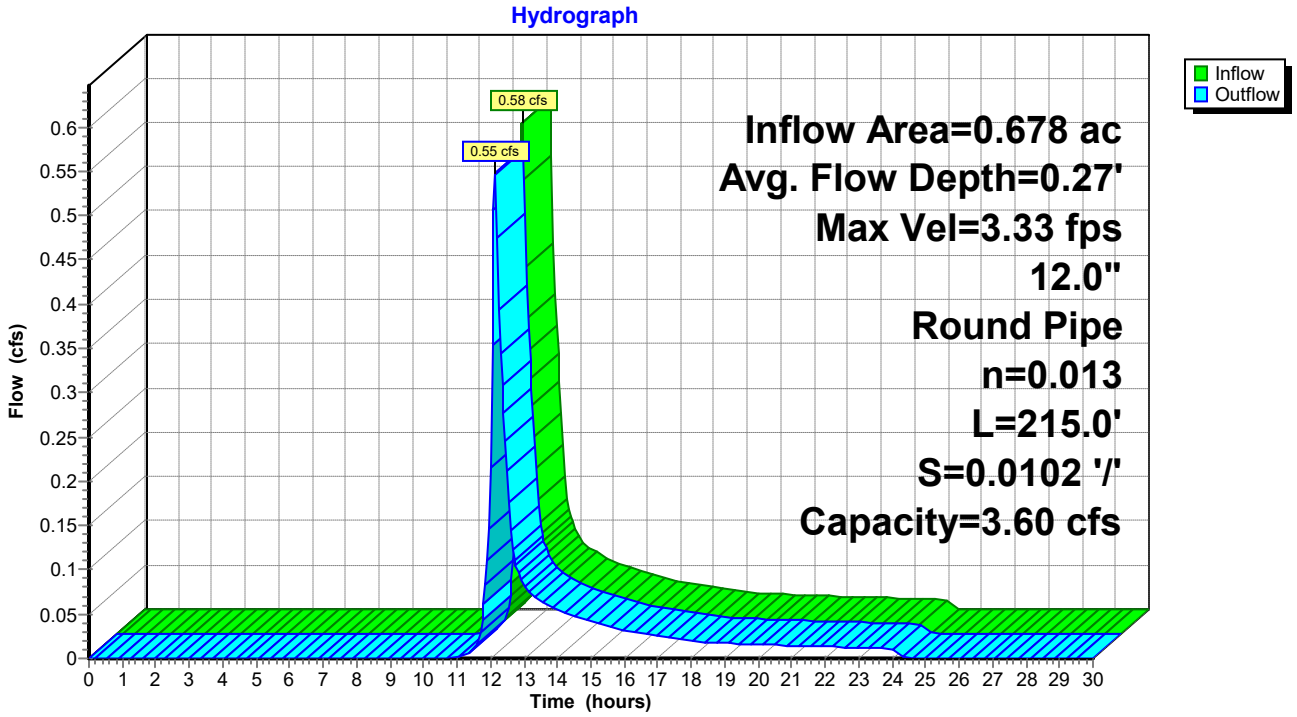
Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.33 fps, Min. Travel Time= 1.1 min
Avg. Velocity = 1.32 fps, Avg. Travel Time= 2.7 min

Peak Storage= 37 cf @ 12.12 hrs
Average Depth at Peak Storage= 0.27'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.60 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 215.0' Slope= 0.0102 '/'
Inlet Invert= 896.20', Outlet Invert= 894.00'



Reach DMH1: TO DMH#2



Summary for Reach DMH2: TO D.BASIN#13

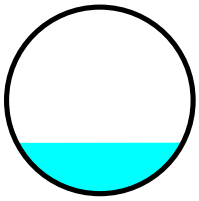
[52] Hint: Inlet/Outlet conditions not evaluated
[61] Hint: Exceeded Reach DMH1 outlet invert by 0.17' @ 12.15 hrs

Inflow Area = 0.678 ac, 30.87% Impervious, Inflow Depth = 0.83" for 2-Year event
Inflow = 0.55 cfs @ 12.14 hrs, Volume= 0.047 af
Outflow = 0.52 cfs @ 12.18 hrs, Volume= 0.047 af, Atten= 4%, Lag= 2.2 min

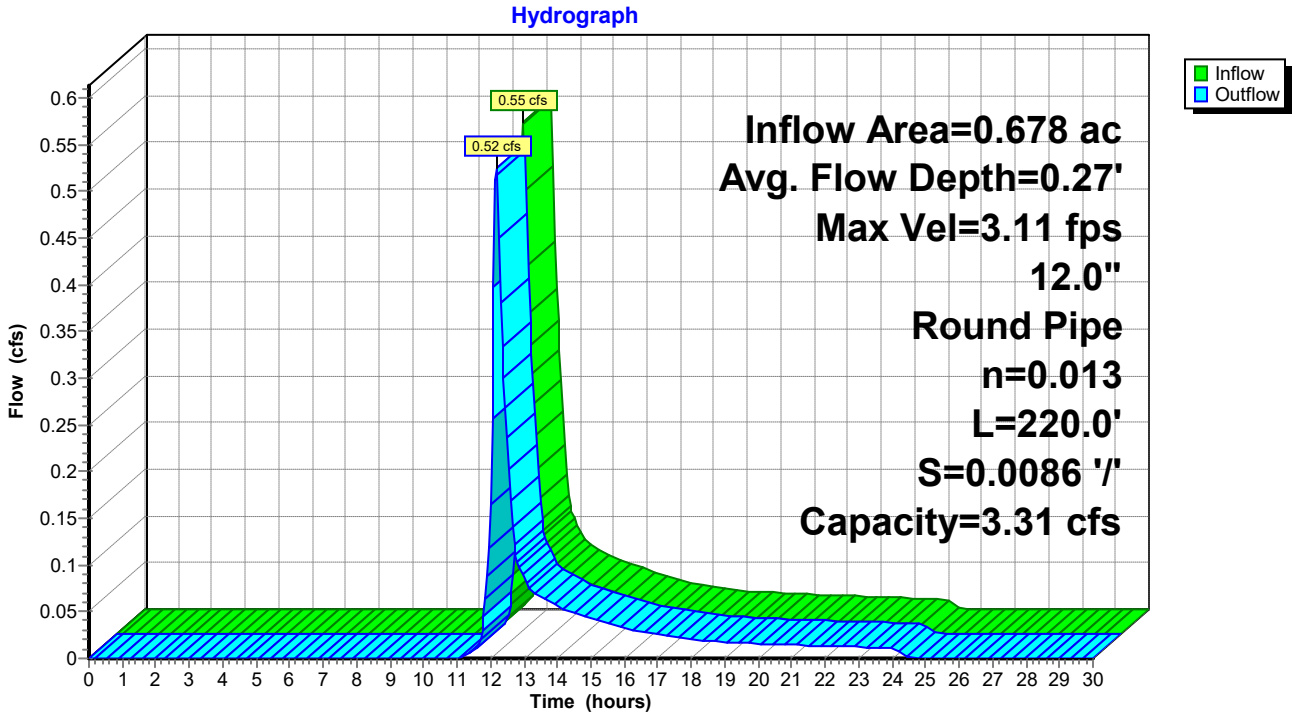
Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.11 fps, Min. Travel Time= 1.2 min
Avg. Velocity = 1.23 fps, Avg. Travel Time= 3.0 min

Peak Storage= 39 cf @ 12.16 hrs
Average Depth at Peak Storage= 0.27'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.31 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 220.0' Slope= 0.0086 '/'
Inlet Invert= 893.90', Outlet Invert= 892.00'



Reach DMH2: TO D.BASIN#13



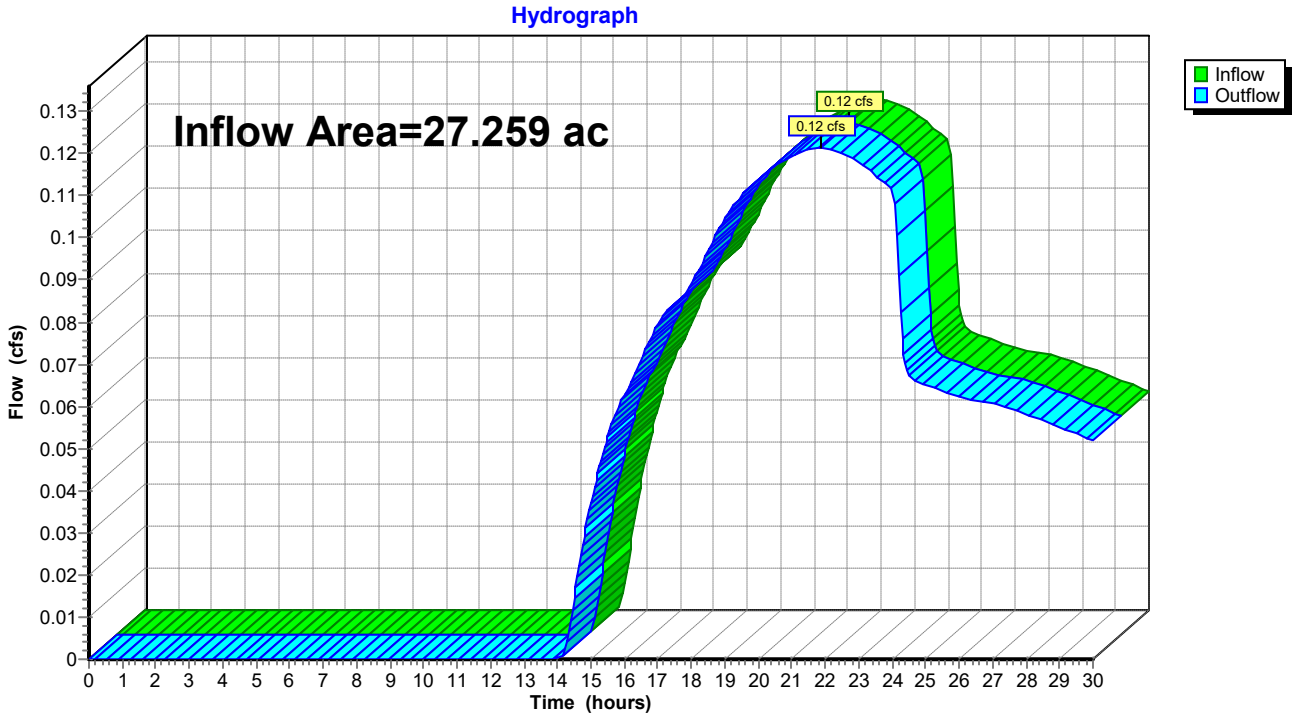
Summary for Reach DP1: DP#1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 27.259 ac, 0.48% Impervious, Inflow Depth > 0.05" for 2-Year event
Inflow = 0.12 cfs @ 21.85 hrs, Volume= 0.105 af
Outflow = 0.12 cfs @ 21.85 hrs, Volume= 0.105 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP1: DP#1



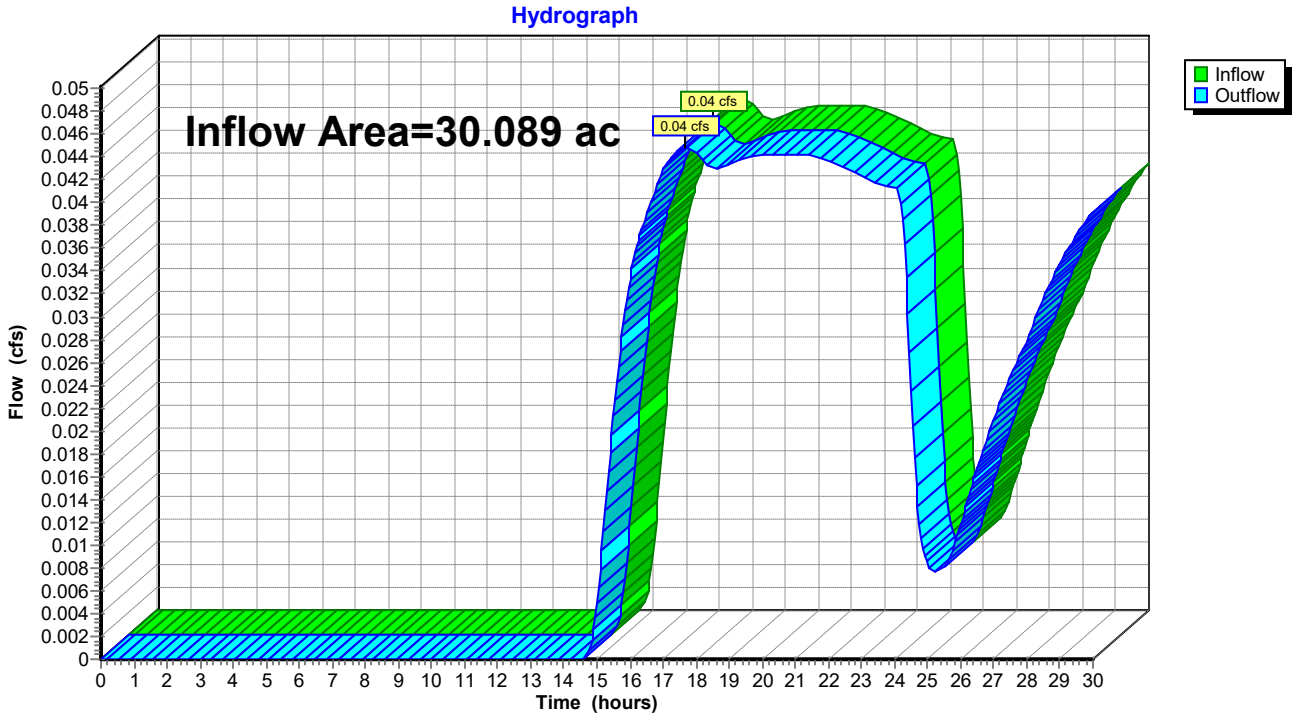
Summary for Reach DP12: DP12

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 30.089 ac, 0.70% Impervious, Inflow Depth > 0.02" for 2-Year event
Inflow = 0.04 cfs @ 17.66 hrs, Volume= 0.042 af
Outflow = 0.04 cfs @ 17.66 hrs, Volume= 0.042 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP12: DP12



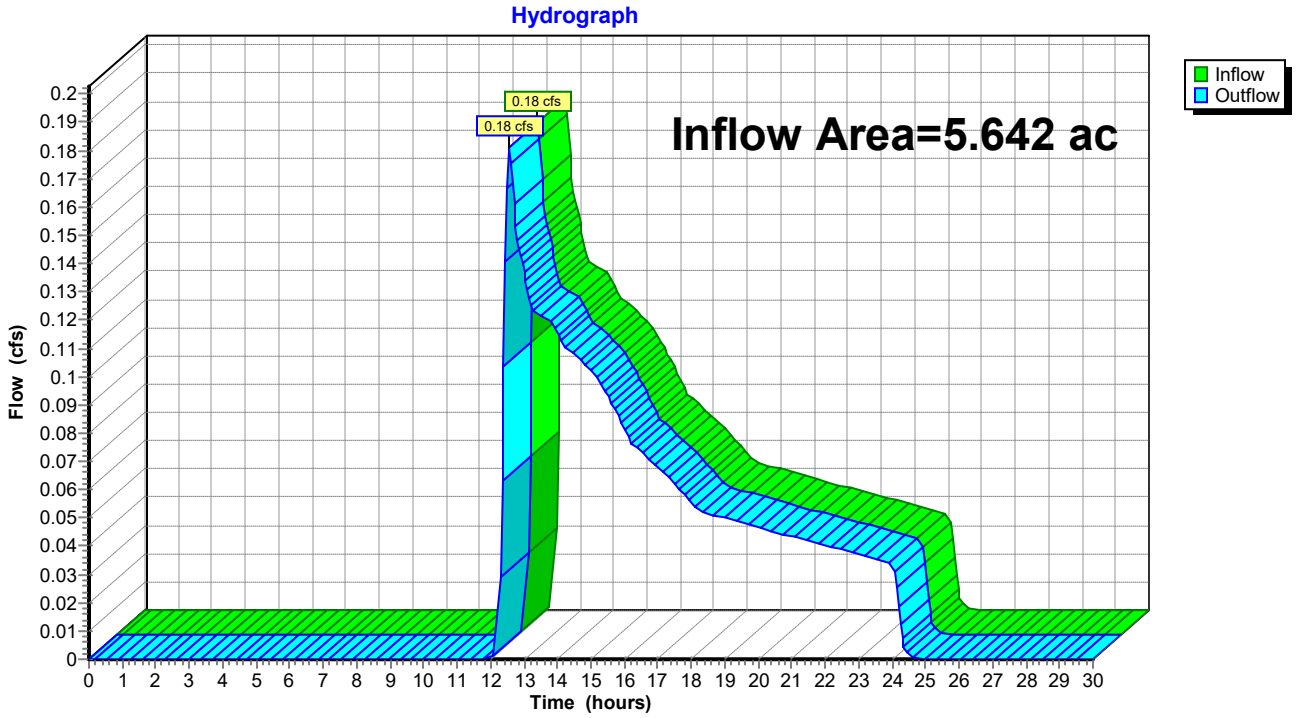
Summary for Reach DP13: DP131

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 5.642 ac, 0.00% Impervious, Inflow Depth = 0.15" for 2-Year event
Inflow = 0.18 cfs @ 12.57 hrs, Volume= 0.068 af
Outflow = 0.18 cfs @ 12.57 hrs, Volume= 0.068 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP13: DP131



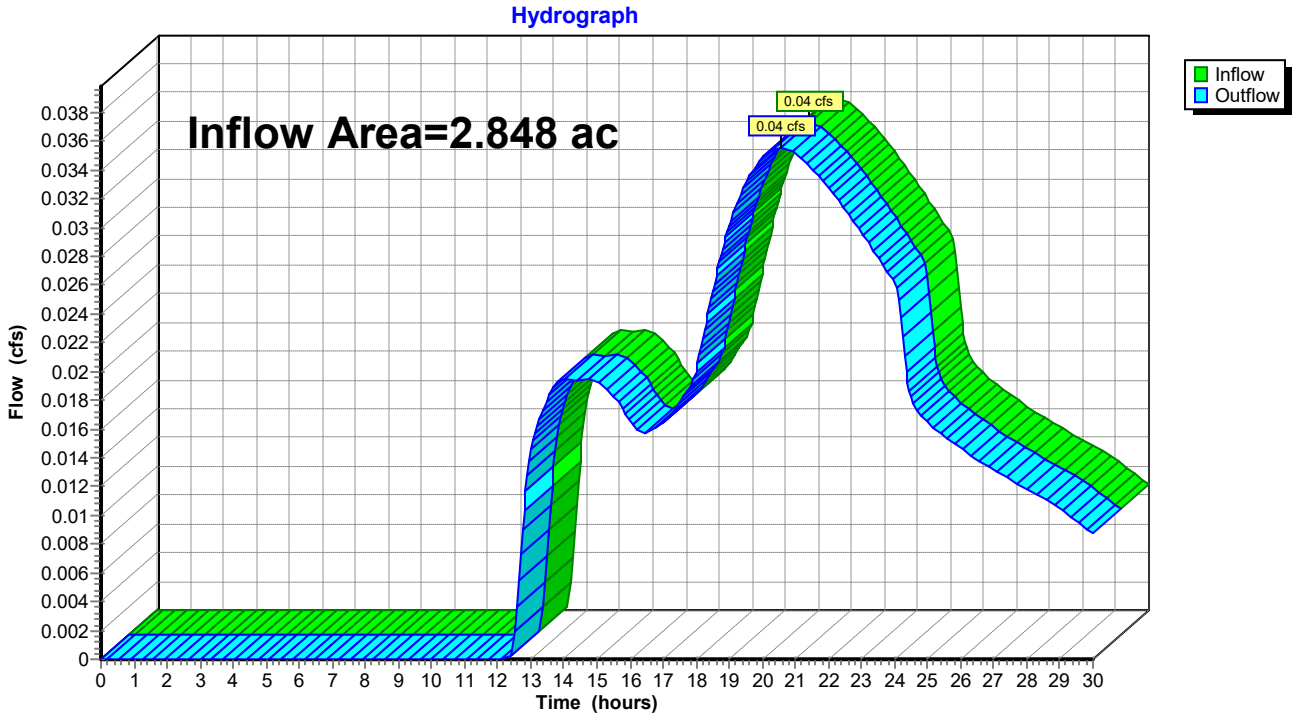
Summary for Reach DP14: DP14

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 2.848 ac, 0.00% Impervious, Inflow Depth > 0.13" for 2-Year event
Inflow = 0.04 cfs @ 20.56 hrs, Volume= 0.030 af
Outflow = 0.04 cfs @ 20.56 hrs, Volume= 0.030 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP14: DP14



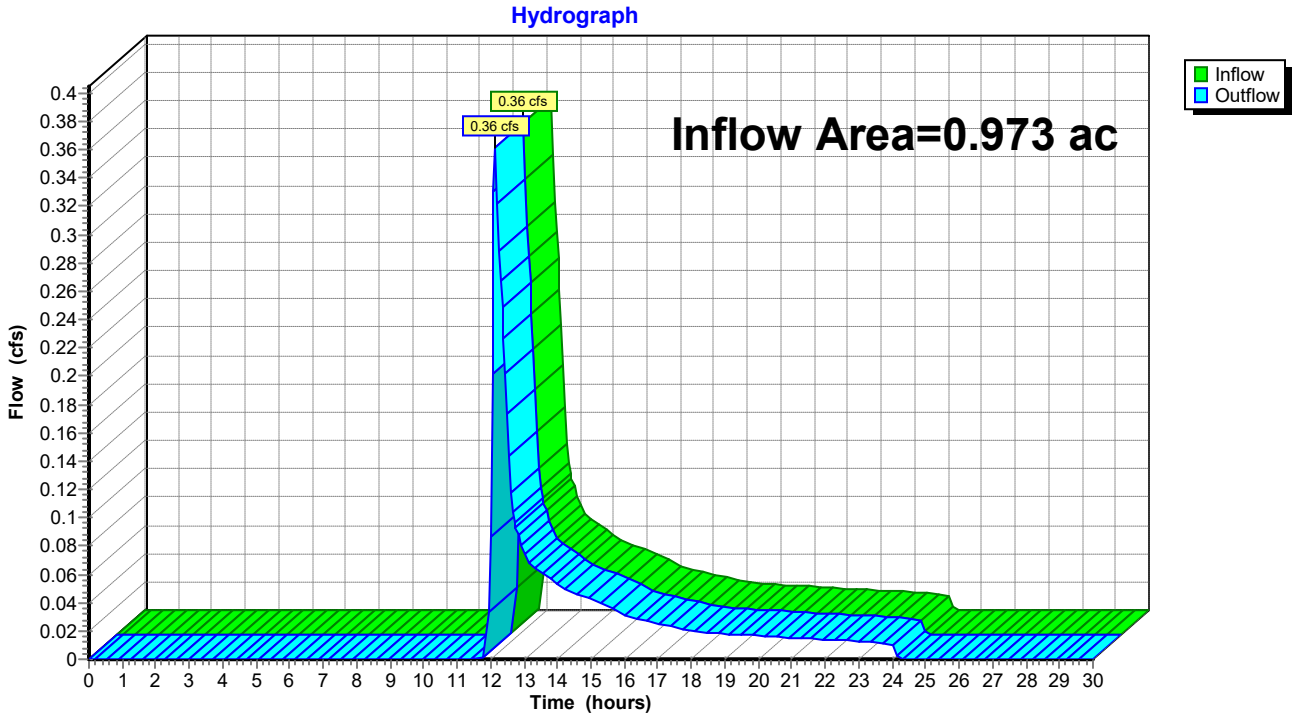
Summary for Reach DP15: DP15

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.973 ac, 10.17% Impervious, Inflow Depth = 0.48" for 2-Year event
Inflow = 0.36 cfs @ 12.15 hrs, Volume= 0.039 af
Outflow = 0.36 cfs @ 12.15 hrs, Volume= 0.039 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP15: DP15



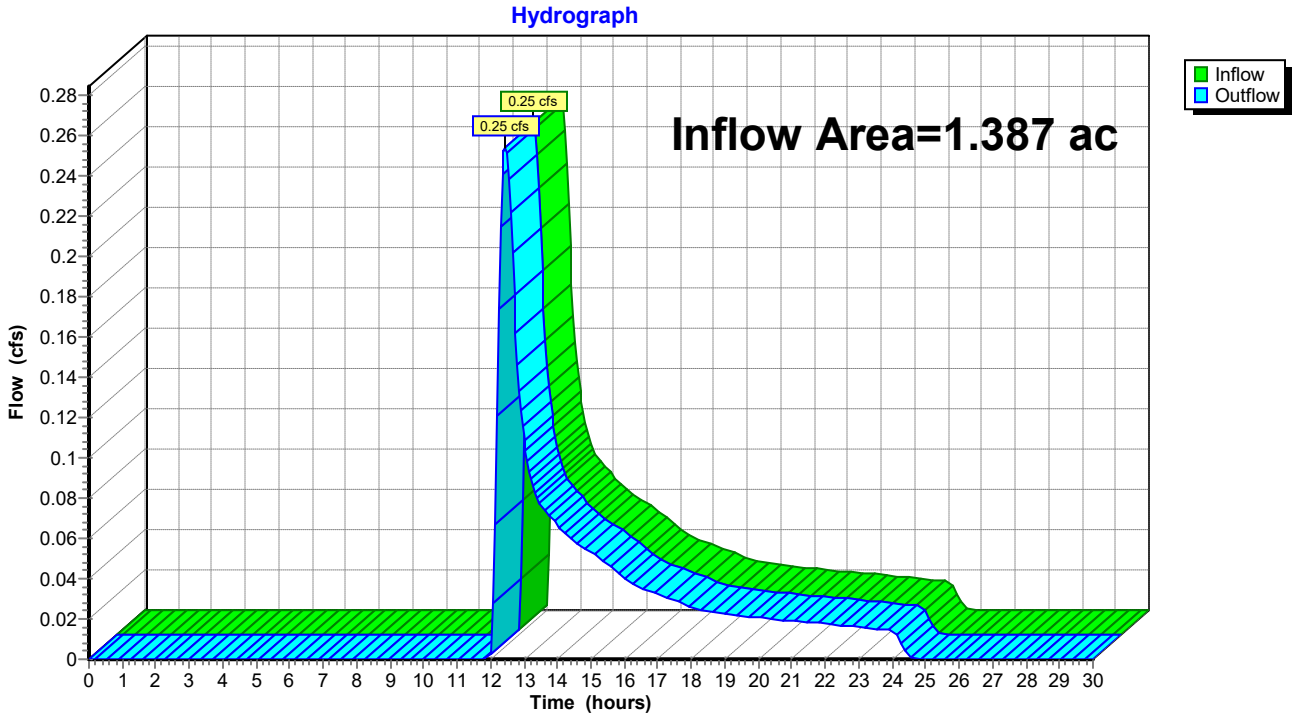
Summary for Reach DP16: DP16

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.387 ac, 10.83% Impervious, Inflow Depth = 0.38" for 2-Year event
Inflow = 0.25 cfs @ 12.44 hrs, Volume= 0.044 af
Outflow = 0.25 cfs @ 12.44 hrs, Volume= 0.044 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP16: DP16



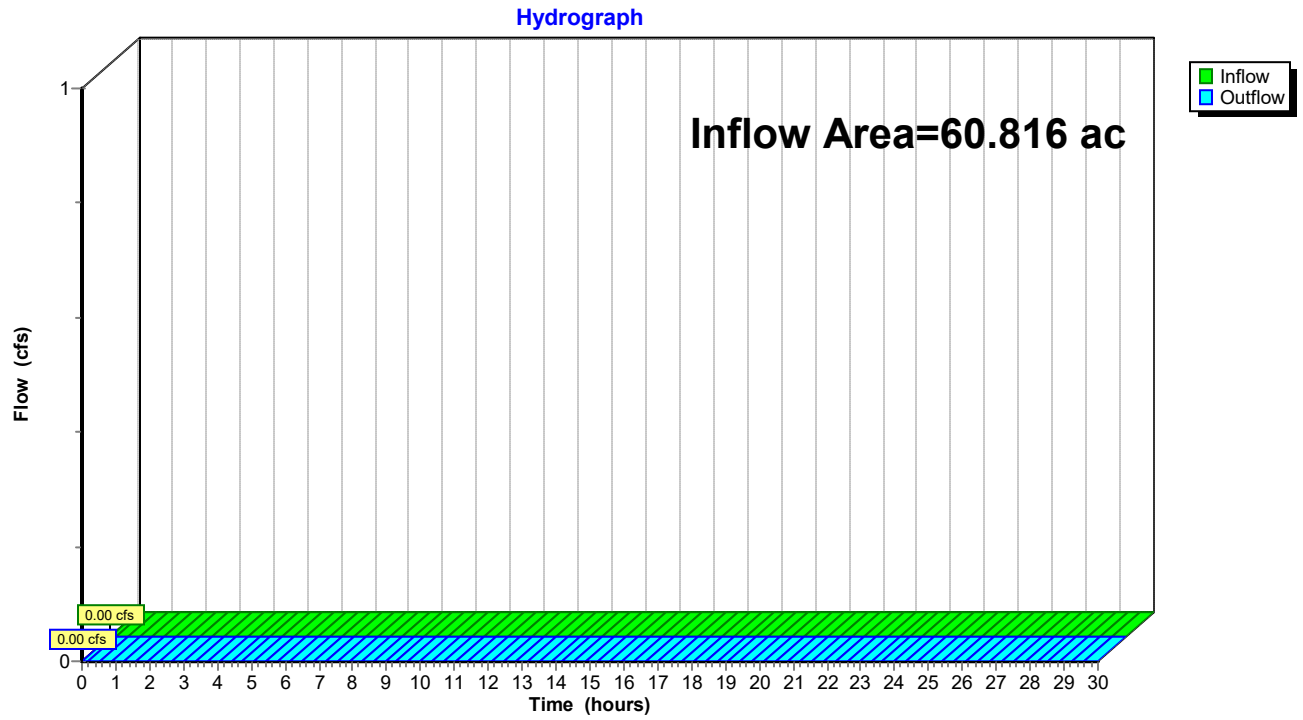
Summary for Reach DP2: DP#2

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 60.816 ac, 1.81% Impervious, Inflow Depth = 0.00" for 2-Year event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP2: DP#2



Summary for Reach OL1: (new Reach)

Inflow Area = 17.764 ac, 1.27% Impervious, Inflow Depth > 0.01" for 2-Year event
Inflow = 0.01 cfs @ 23.51 hrs, Volume= 0.009 af
Outflow = 0.01 cfs @ 23.79 hrs, Volume= 0.009 af, Atten= 0%, Lag= 16.8 min

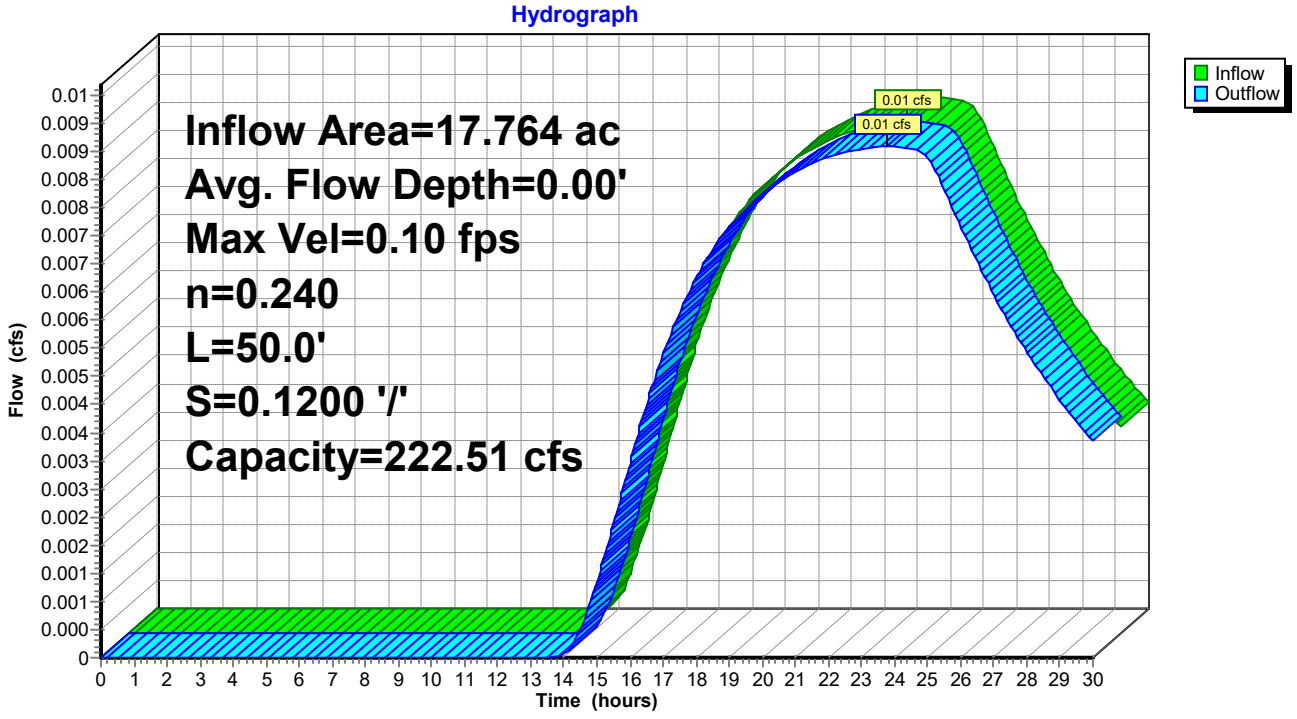
Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.10 fps, Min. Travel Time= 8.4 min
Avg. Velocity = 0.10 fps, Avg. Travel Time= 8.4 min

Peak Storage= 5 cf @ 23.65 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 1.00' Flow Area= 110.0 sf, Capacity= 222.51 cfs

100.00' x 1.00' deep channel, n= 0.240 Sheet flow over Dense Grass
Side Slope Z-value= 10.0 '/' Top Width= 120.00'
Length= 50.0' Slope= 0.1200 '/'
Inlet Invert= 878.00', Outlet Invert= 872.00'

‡

Reach OL1: (new Reach)



Summary for Reach OL121: WOODS-4

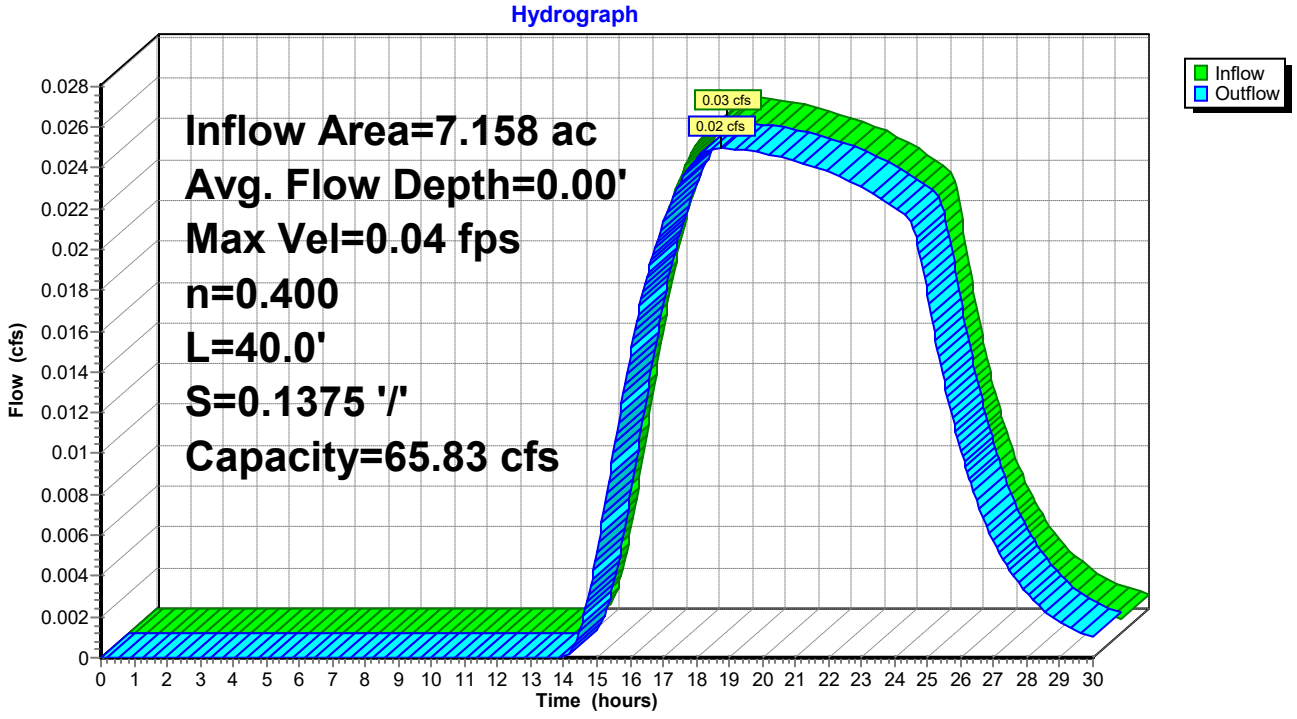
Inflow Area = 7.158 ac, 0.00% Impervious, Inflow Depth > 0.03" for 2-Year event
Inflow = 0.03 cfs @ 18.06 hrs, Volume= 0.021 af
Outflow = 0.02 cfs @ 18.74 hrs, Volume= 0.020 af, Atten= 0%, Lag= 41.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.04 fps, Min. Travel Time= 16.6 min
Avg. Velocity = 0.04 fps, Avg. Travel Time= 16.6 min

Peak Storage= 25 cf @ 18.46 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 0.50' Flow Area= 77.5 sf, Capacity= 65.83 cfs

150.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 160.00'
Length= 40.0' Slope= 0.1375 '/'
Inlet Invert= 881.50', Outlet Invert= 876.00'

Reach OL121: WOODS-4



Summary for Reach OL122: WOODS-4

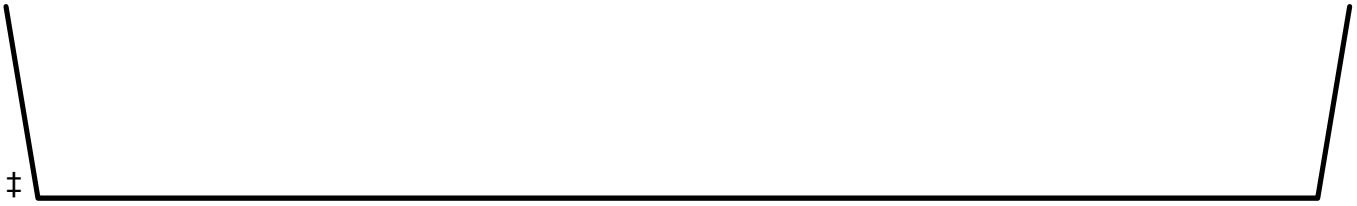
[62] Hint: Exceeded Reach OL121 OUTLET depth by 0.01' @ 26.40 hrs

Inflow Area = 7.158 ac, 0.00% Impervious, Inflow Depth > 0.03" for 2-Year event
Inflow = 0.02 cfs @ 18.74 hrs, Volume= 0.020 af
Outflow = 0.02 cfs @ 30.00 hrs, Volume= 0.008 af, Atten= 23%, Lag= 675.6 min

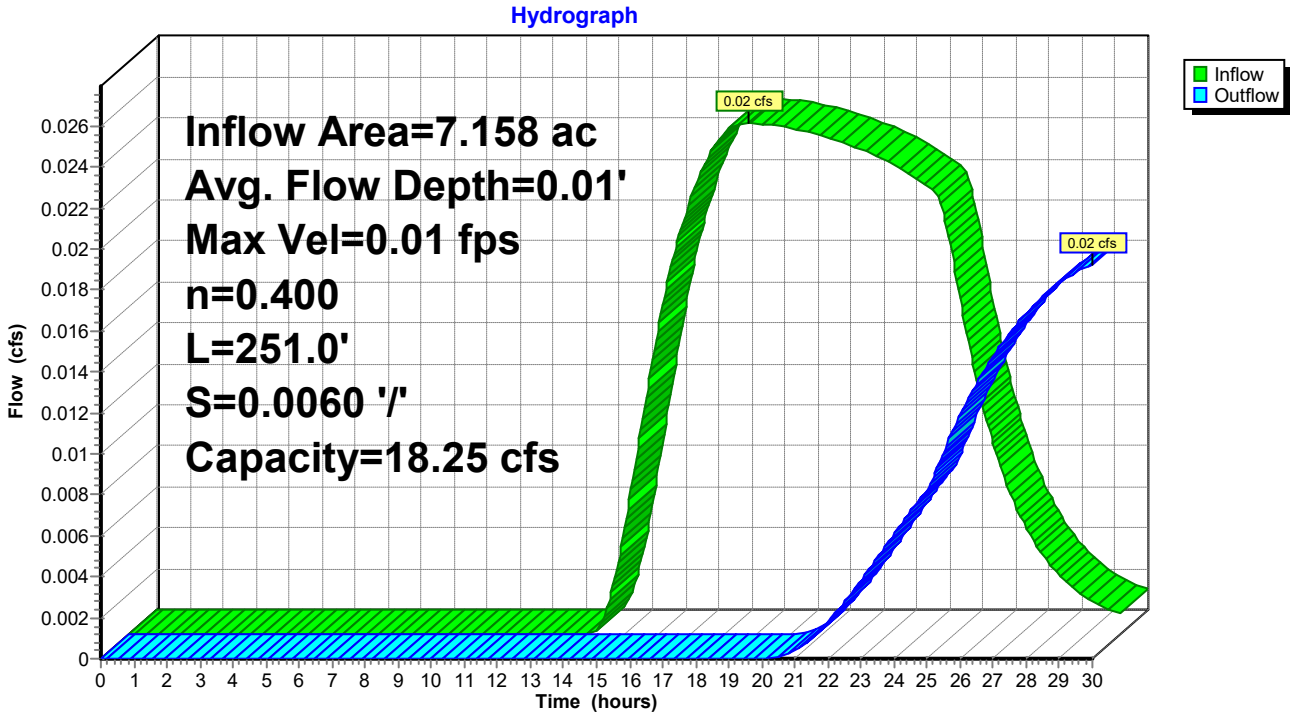
Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.01 fps, Min. Travel Time= 345.1 min
Avg. Velocity = 0.01 fps, Avg. Travel Time= 415.5 min

Peak Storage= 404 cf @ 24.79 hrs
Average Depth at Peak Storage= 0.01'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 18.25 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 251.0' Slope= 0.0060 '/'
Inlet Invert= 876.00', Outlet Invert= 874.50'



Reach OL122: WOODS-4



Summary for Reach OL123: GRASS

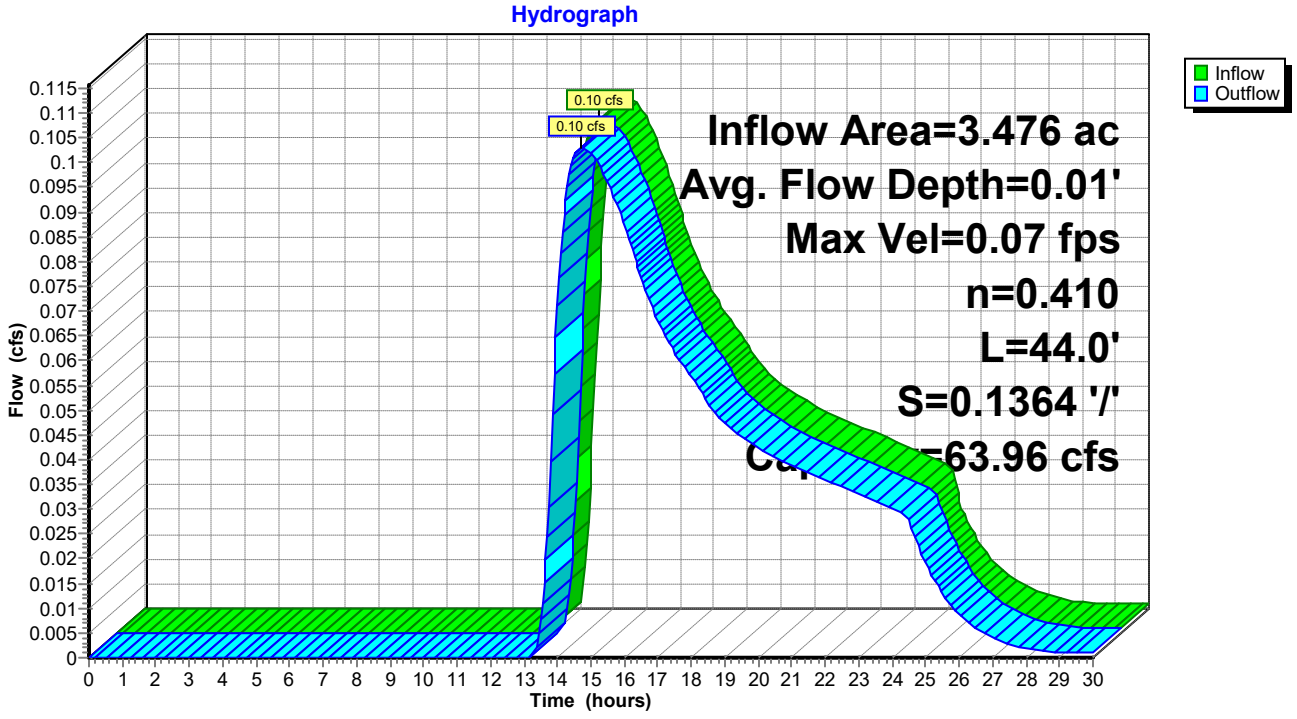
Inflow Area = 3.476 ac, 6.03% Impervious, Inflow Depth > 0.18" for 2-Year event
Inflow = 0.10 cfs @ 14.41 hrs, Volume= 0.053 af
Outflow = 0.10 cfs @ 14.73 hrs, Volume= 0.053 af, Atten= 0%, Lag= 19.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.07 fps, Min. Travel Time= 11.3 min
Avg. Velocity = 0.05 fps, Avg. Travel Time= 15.8 min

Peak Storage= 70 cf @ 14.54 hrs
Average Depth at Peak Storage= 0.01'
Bank-Full Depth= 0.50' Flow Area= 77.5 sf, Capacity= 63.96 cfs

150.00' x 0.50' deep channel, n= 0.410 Sheet flow over Bermuda Grass
Side Slope Z-value= 10.0 '/' Top Width= 160.00'
Length= 44.0' Slope= 0.1364 '/'
Inlet Invert= 887.00', Outlet Invert= 881.00'

Reach OL123: GRASS



Summary for Reach OL124: WOODS-4

[61] Hint: Exceeded Reach OL123 outlet invert by 0.01' @ 15.05 hrs

Inflow Area = 3.476 ac, 6.03% Impervious, Inflow Depth > 0.18" for 2-Year event
Inflow = 0.10 cfs @ 14.73 hrs, Volume= 0.053 af
Outflow = 0.10 cfs @ 15.37 hrs, Volume= 0.053 af, Atten= 2%, Lag= 38.4 min

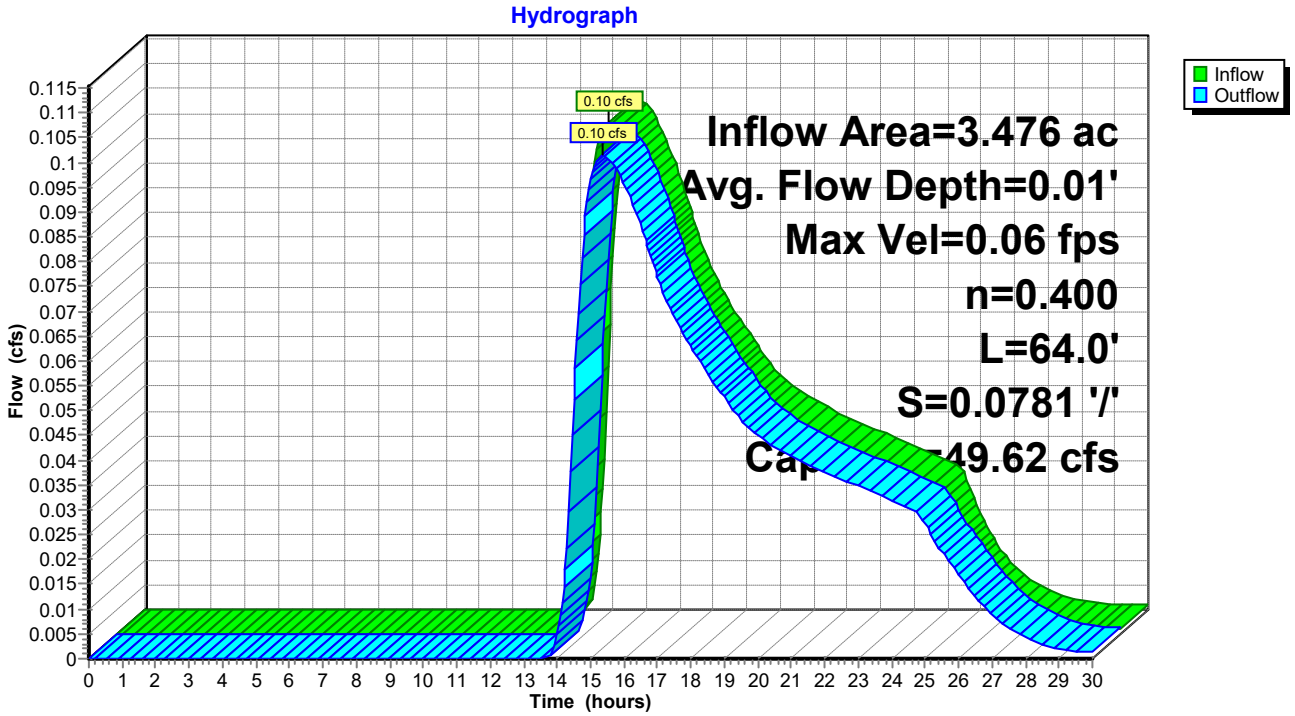
Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.06 fps, Min. Travel Time= 19.1 min
Avg. Velocity = 0.04 fps, Avg. Travel Time= 27.5 min

Peak Storage= 116 cf @ 15.05 hrs
Average Depth at Peak Storage= 0.01'
Bank-Full Depth= 0.50' Flow Area= 77.5 sf, Capacity= 49.62 cfs

150.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 160.00'
Length= 64.0' Slope= 0.0781 '/'
Inlet Invert= 881.00', Outlet Invert= 876.00'

‡

Reach OL124: WOODS-4



Summary for Reach OL125: WOODS-4

[62] Hint: Exceeded Reach OL122 OUTLET depth by 0.01' @ 29.95 hrs
[62] Hint: Exceeded Reach OL126 OUTLET depth by 0.01' @ 29.95 hrs

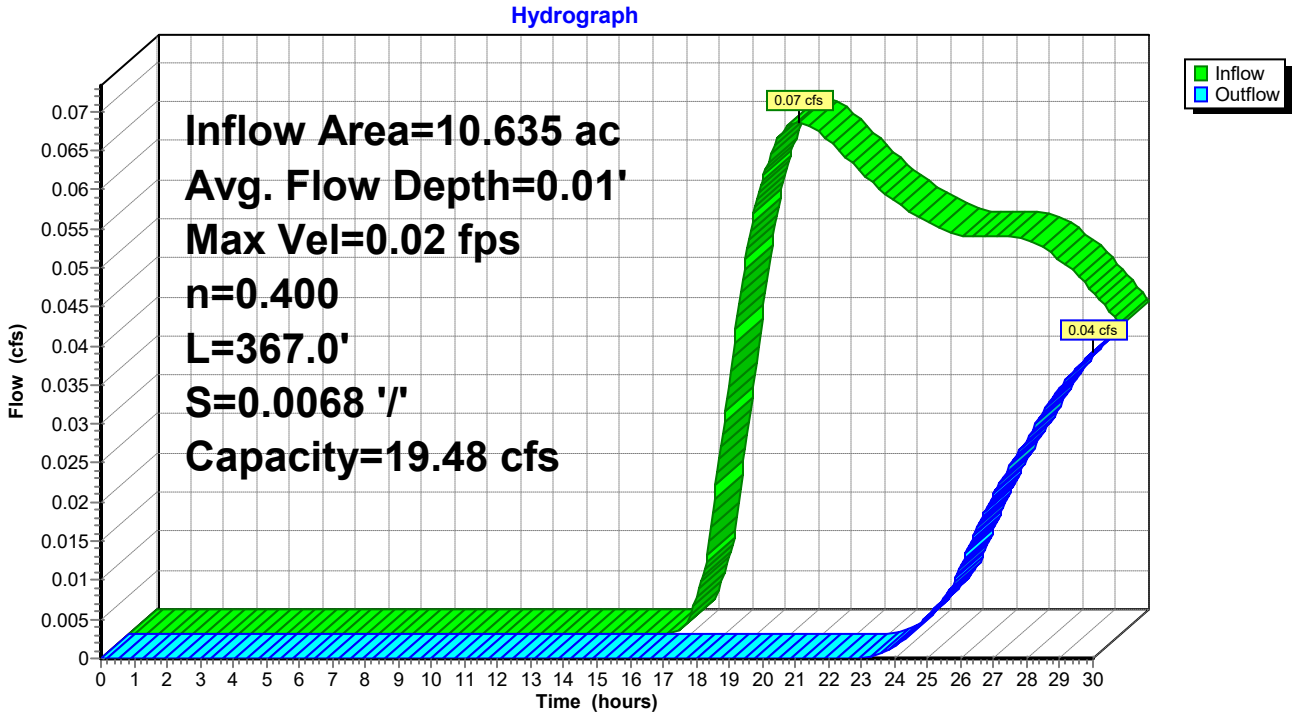
Inflow Area = 10.635 ac, 1.97% Impervious, Inflow Depth > 0.06" for 2-Year event
Inflow = 0.07 cfs @ 20.25 hrs, Volume= 0.054 af
Outflow = 0.04 cfs @ 30.00 hrs, Volume= 0.010 af, Atten= 40%, Lag= 584.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.02 fps, Min. Travel Time= 349.3 min
Avg. Velocity = 0.01 fps, Avg. Travel Time= 435.7 min

Peak Storage= 977 cf @ 28.50 hrs
Average Depth at Peak Storage= 0.01'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 19.48 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 367.0' Slope= 0.0068 '/'
Inlet Invert= 874.50', Outlet Invert= 872.00'

Reach OL125: WOODS-4



Summary for Reach OL126: WOODS-4

[62] Hint: Exceeded Reach OL124 OUTLET depth by 0.01' @ 19.00 hrs

Inflow Area = 3.476 ac, 6.03% Impervious, Inflow Depth > 0.18" for 2-Year event
Inflow = 0.10 cfs @ 15.37 hrs, Volume= 0.053 af
Outflow = 0.07 cfs @ 20.23 hrs, Volume= 0.046 af, Atten= 36%, Lag= 291.8 min

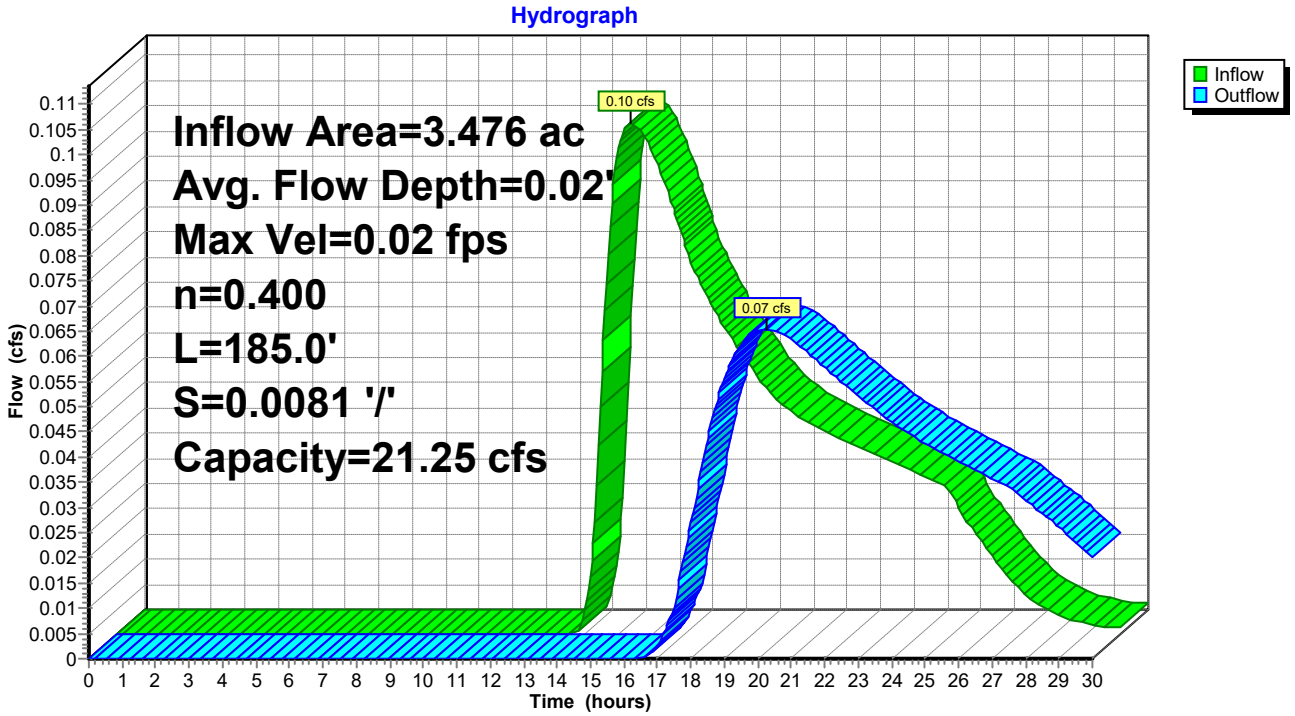
Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.02 fps, Min. Travel Time= 147.0 min
Avg. Velocity = 0.02 fps, Avg. Travel Time= 190.5 min

Peak Storage= 577 cf @ 17.78 hrs
Average Depth at Peak Storage= 0.02'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 21.25 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 185.0' Slope= 0.0081 '/'
Inlet Invert= 876.00', Outlet Invert= 874.50'

‡

Reach OL126: WOODS-4



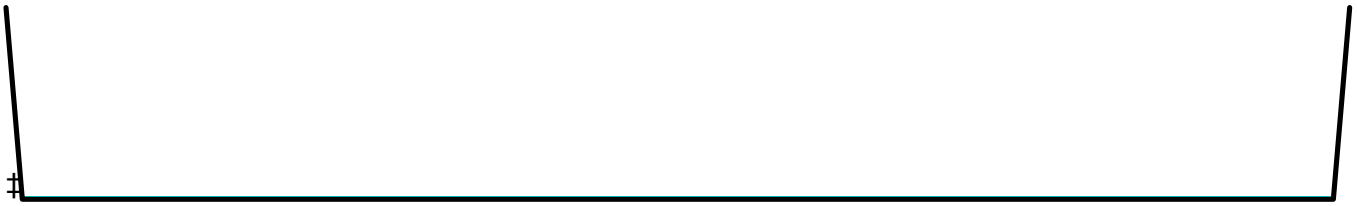
Summary for Reach OL141: WOODS

Inflow Area = 1.193 ac, 0.00% Impervious, Inflow Depth > 0.21" for 2-Year event
Inflow = 0.04 cfs @ 13.53 hrs, Volume= 0.021 af
Outflow = 0.03 cfs @ 18.25 hrs, Volume= 0.020 af, Atten= 26%, Lag= 283.3 min

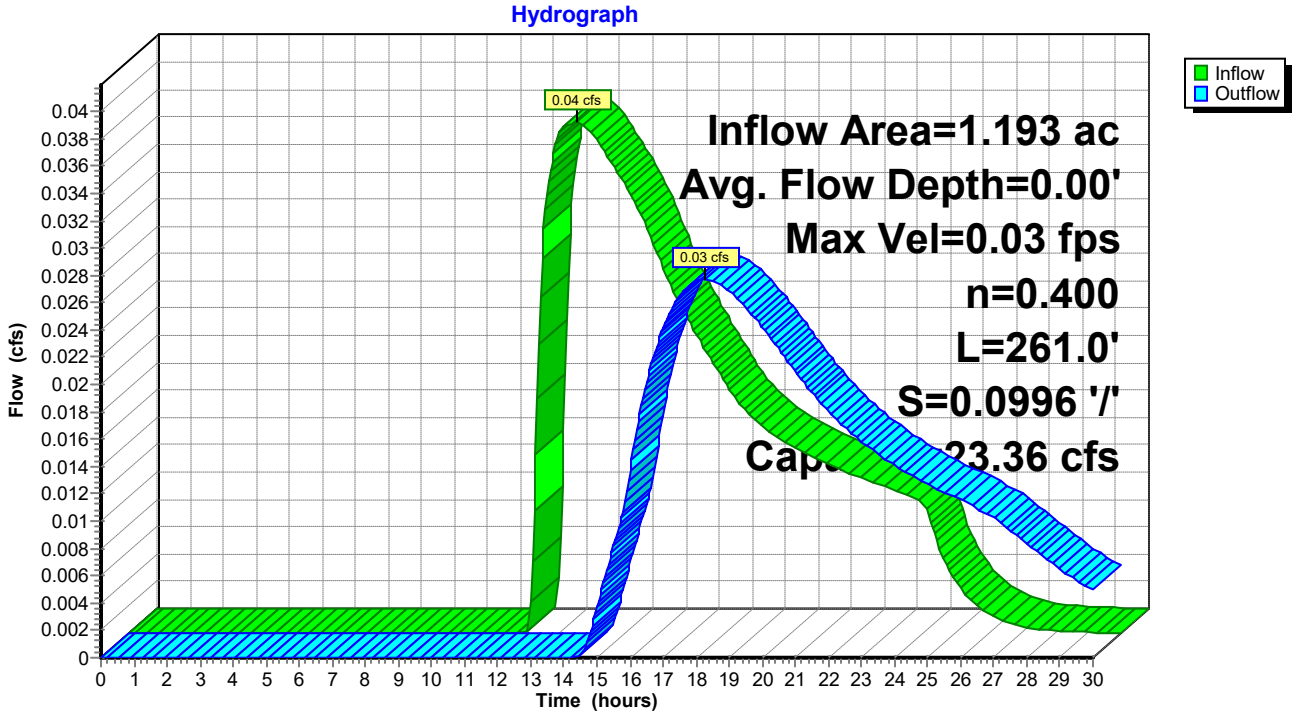
Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.03 fps, Min. Travel Time= 135.0 min
Avg. Velocity = 0.03 fps, Avg. Travel Time= 172.1 min

Peak Storage= 225 cf @ 16.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 0.25' Flow Area= 50.6 sf, Capacity= 23.36 cfs

200.00' x 0.25' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 205.00'
Length= 261.0' Slope= 0.0996 '/'
Inlet Invert= 888.00', Outlet Invert= 862.00'



Reach OL141: WOODS



Summary for Reach OL142: WOODS

[61] Hint: Exceeded Reach OL141 outlet invert by 0.01' @ 19.40 hrs

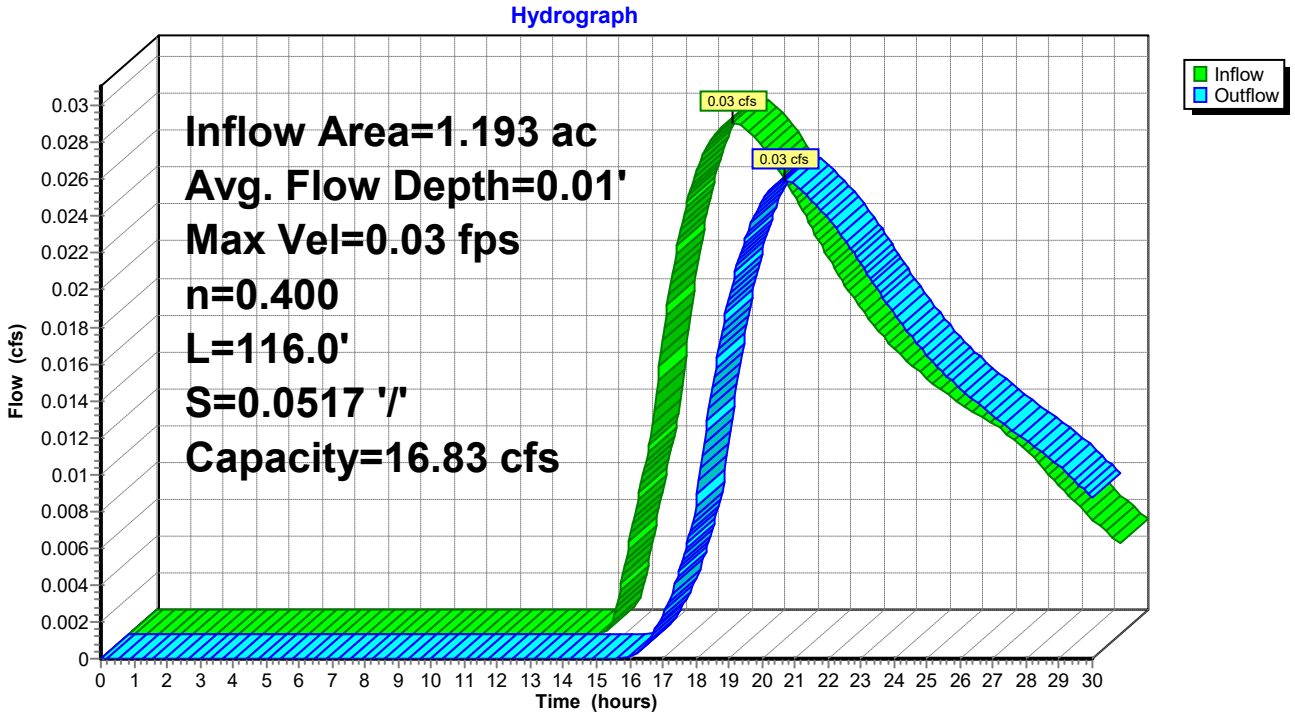
Inflow Area = 1.193 ac, 0.00% Impervious, Inflow Depth > 0.20" for 2-Year event
Inflow = 0.03 cfs @ 18.25 hrs, Volume= 0.020 af
Outflow = 0.03 cfs @ 20.68 hrs, Volume= 0.018 af, Atten= 7%, Lag= 145.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.03 fps, Min. Travel Time= 76.5 min
Avg. Velocity = 0.02 fps, Avg. Travel Time= 95.0 min

Peak Storage= 119 cf @ 19.40 hrs
Average Depth at Peak Storage= 0.01'
Bank-Full Depth= 0.25' Flow Area= 50.6 sf, Capacity= 16.83 cfs

200.00' x 0.25' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 205.00'
Length= 116.0' Slope= 0.0517 '/'
Inlet Invert= 862.00', Outlet Invert= 856.00'

Reach OL142: WOODS



Summary for Reach SW1A: (new Reach)

Inflow Area = 2.547 ac, 0.00% Impervious, Inflow Depth = 0.05" for 2-Year event
Inflow = 0.02 cfs @ 15.25 hrs, Volume= 0.010 af
Outflow = 0.02 cfs @ 15.66 hrs, Volume= 0.010 af, Atten= 1%, Lag= 25.0 min

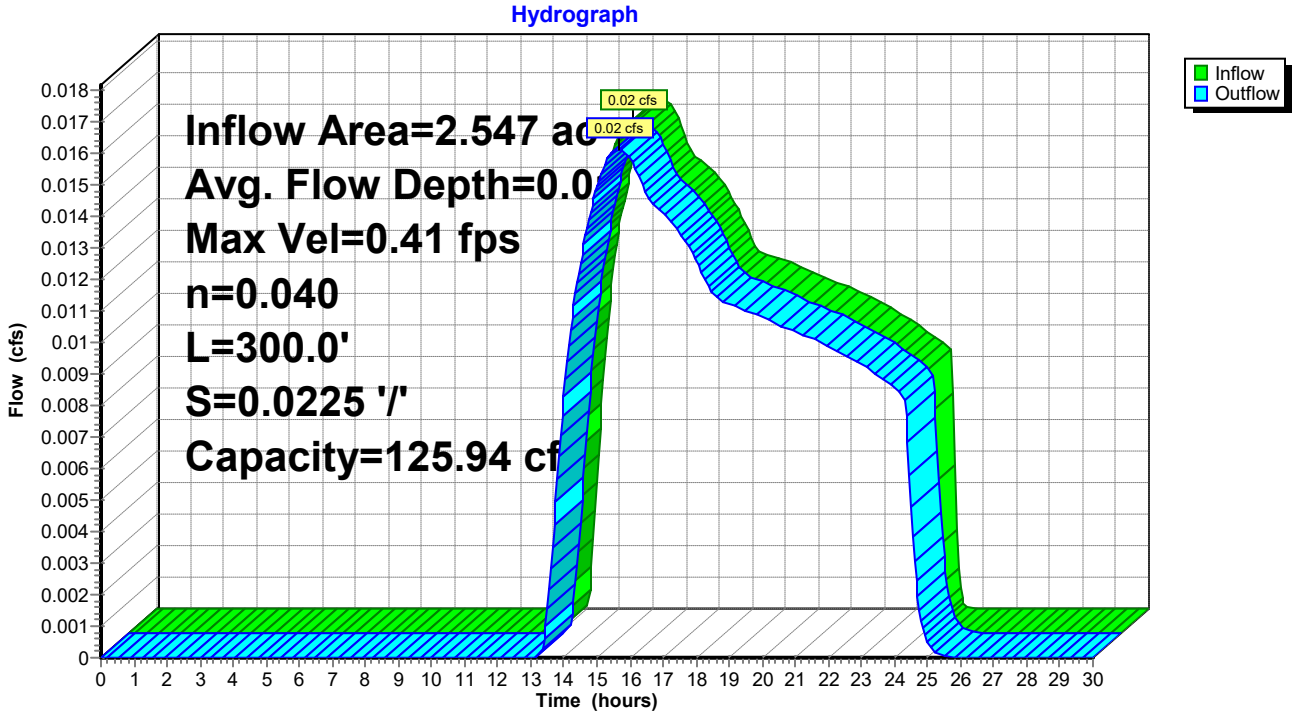
Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.41 fps, Min. Travel Time= 12.3 min
Avg. Velocity = 0.41 fps, Avg. Travel Time= 12.3 min

Peak Storage= 12 cf @ 15.46 hrs
Average Depth at Peak Storage= 0.01'
Bank-Full Depth= 2.00' Flow Area= 20.0 sf, Capacity= 125.94 cfs

4.00' x 2.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 3.0 '/' Top Width= 16.00'
Length= 300.0' Slope= 0.0225 '/'
Inlet Invert= 913.85', Outlet Invert= 907.10'

‡

Reach SW1A: (new Reach)



Summary for Reach SW1B: (new Reach)

[61] Hint: Exceeded Reach SW1A outlet invert by 0.01' @ 15.75 hrs

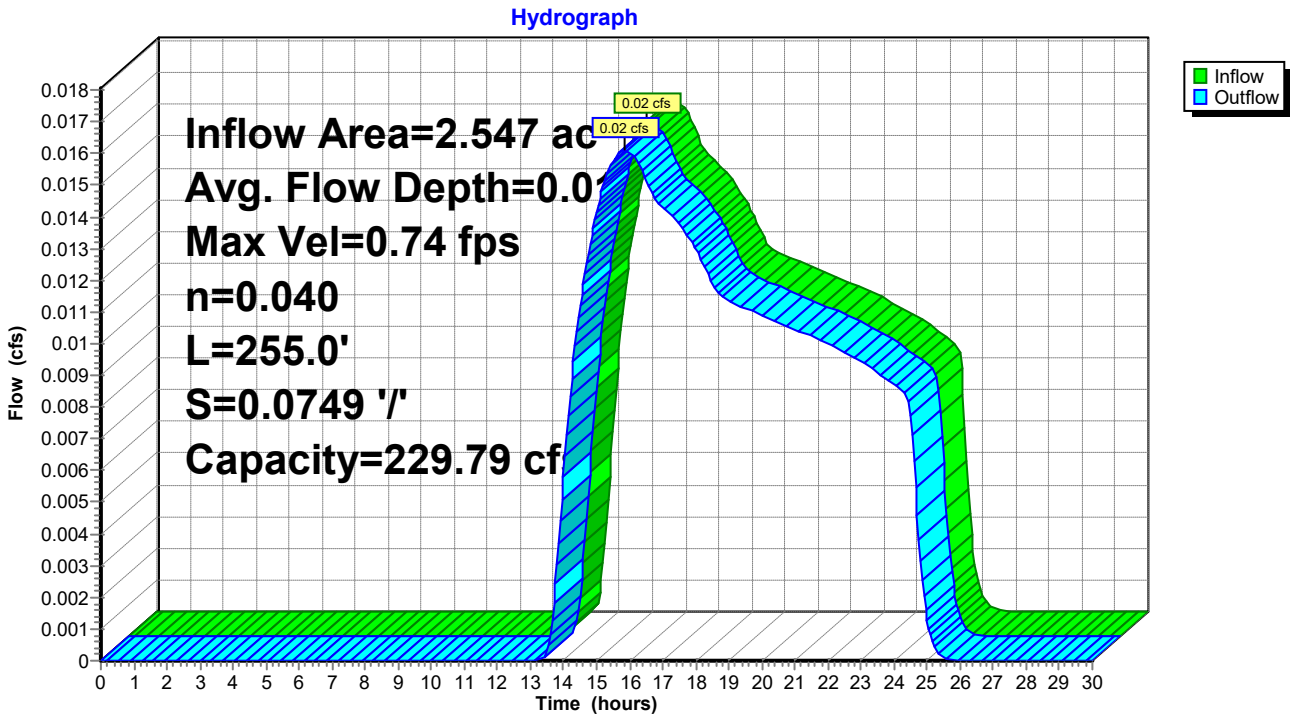
Inflow Area = 2.547 ac, 0.00% Impervious, Inflow Depth = 0.05" for 2-Year event
Inflow = 0.02 cfs @ 15.66 hrs, Volume= 0.010 af
Outflow = 0.02 cfs @ 15.86 hrs, Volume= 0.010 af, Atten= 0%, Lag= 11.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.74 fps, Min. Travel Time= 5.7 min
Avg. Velocity = 0.74 fps, Avg. Travel Time= 5.7 min

Peak Storage= 6 cf @ 15.76 hrs
Average Depth at Peak Storage= 0.01'
Bank-Full Depth= 2.00' Flow Area= 20.0 sf, Capacity= 229.79 cfs

4.00' x 2.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 3.0 '/' Top Width= 16.00'
Length= 255.0' Slope= 0.0749 '/'
Inlet Invert= 907.10', Outlet Invert= 888.00'

‡



Summary for Reach SW2A: (new Reach)

Inflow Area = 11.353 ac, 1.93% Impervious, Inflow Depth = 0.00" for 2-Year event
Inflow = 0.00 cfs @ 24.06 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 24.20 hrs, Volume= 0.000 af, Atten= 2%, Lag= 8.4 min

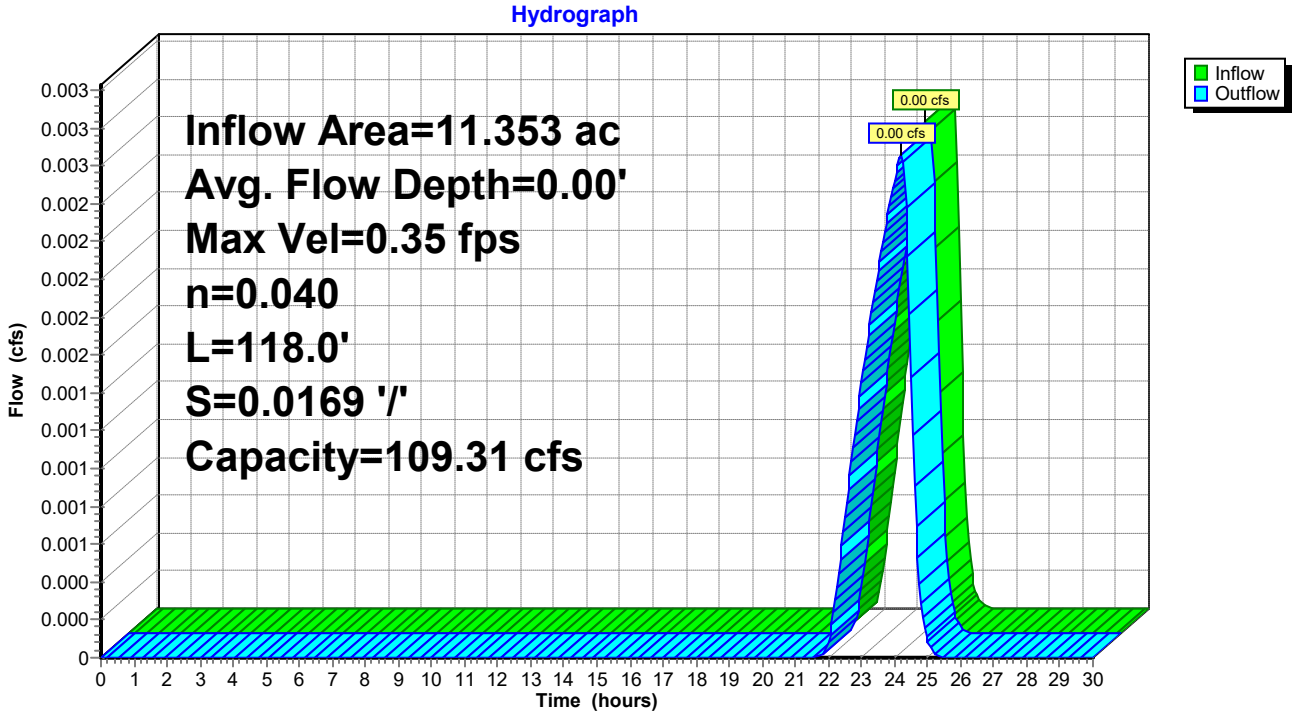
Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.35 fps, Min. Travel Time= 5.6 min
Avg. Velocity = 0.35 fps, Avg. Travel Time= 5.6 min

Peak Storage= 1 cf @ 24.11 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 2.00' Flow Area= 20.0 sf, Capacity= 109.31 cfs

4.00' x 2.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 3.0 '/' Top Width= 16.00'
Length= 118.0' Slope= 0.0169 '/'
Inlet Invert= 890.00', Outlet Invert= 888.00'

‡

Reach SW2A: (new Reach)



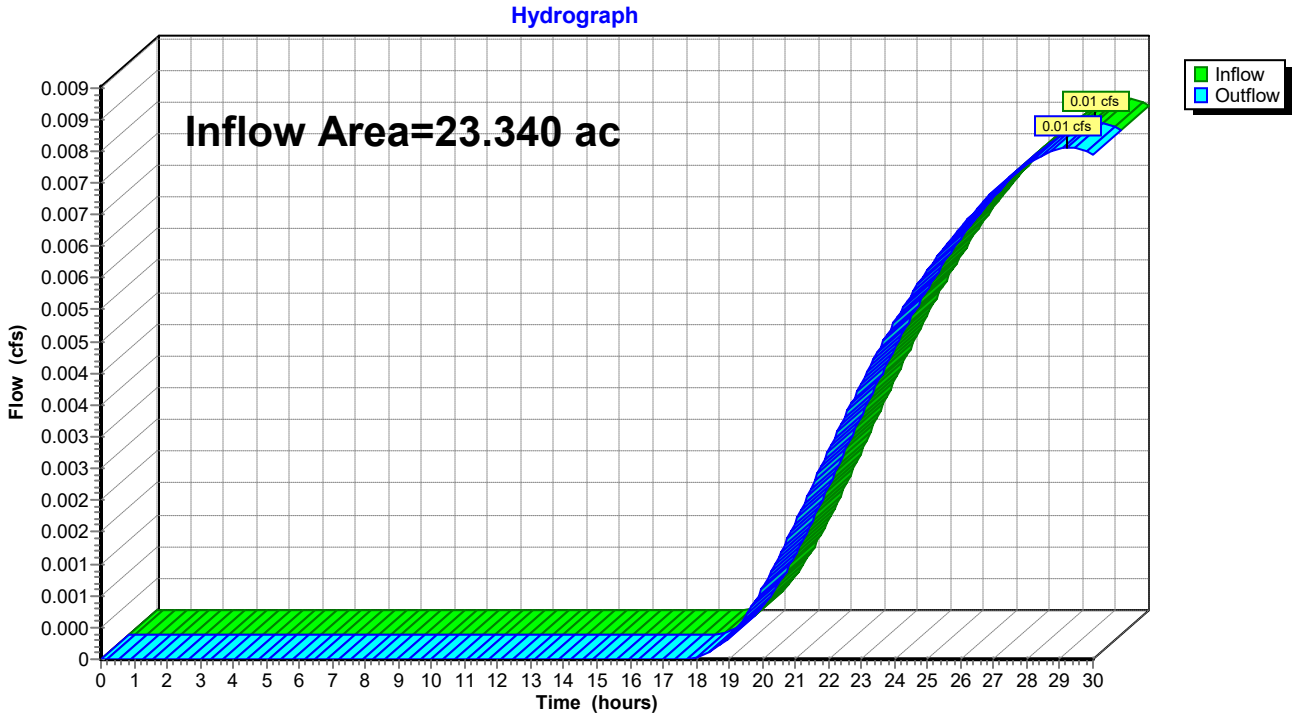
Summary for Reach WETLAND: WETLAND

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 23.340 ac, 0.97% Impervious, Inflow Depth > 0.00" for 2-Year event
Inflow = 0.01 cfs @ 29.24 hrs, Volume= 0.005 af
Outflow = 0.01 cfs @ 29.24 hrs, Volume= 0.005 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach WETLAND: WETLAND



Summary for Pond DB1: TO DP#1

[44] Hint: Outlet device #3 is below defined storage

Inflow Area = 2.133 ac, 0.00% Impervious, Inflow Depth = 0.19" for 2-Year event
Inflow = 0.14 cfs @ 12.40 hrs, Volume= 0.034 af
Outflow = 0.04 cfs @ 13.00 hrs, Volume= 0.034 af, Atten= 71%, Lag= 35.9 min
Primary = 0.04 cfs @ 13.00 hrs, Volume= 0.034 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 817.10' @ 15.68 hrs Surf.Area= 3,481 sf Storage= 335 cf

Plug-Flow detention time= 107.3 min calculated for 0.034 af (100% of inflow)
Center-of-Mass det. time= 107.1 min (1,080.2 - 973.1)

Volume	Invert	Avail.Storage	Storage Description
#1	817.00'	15,897 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

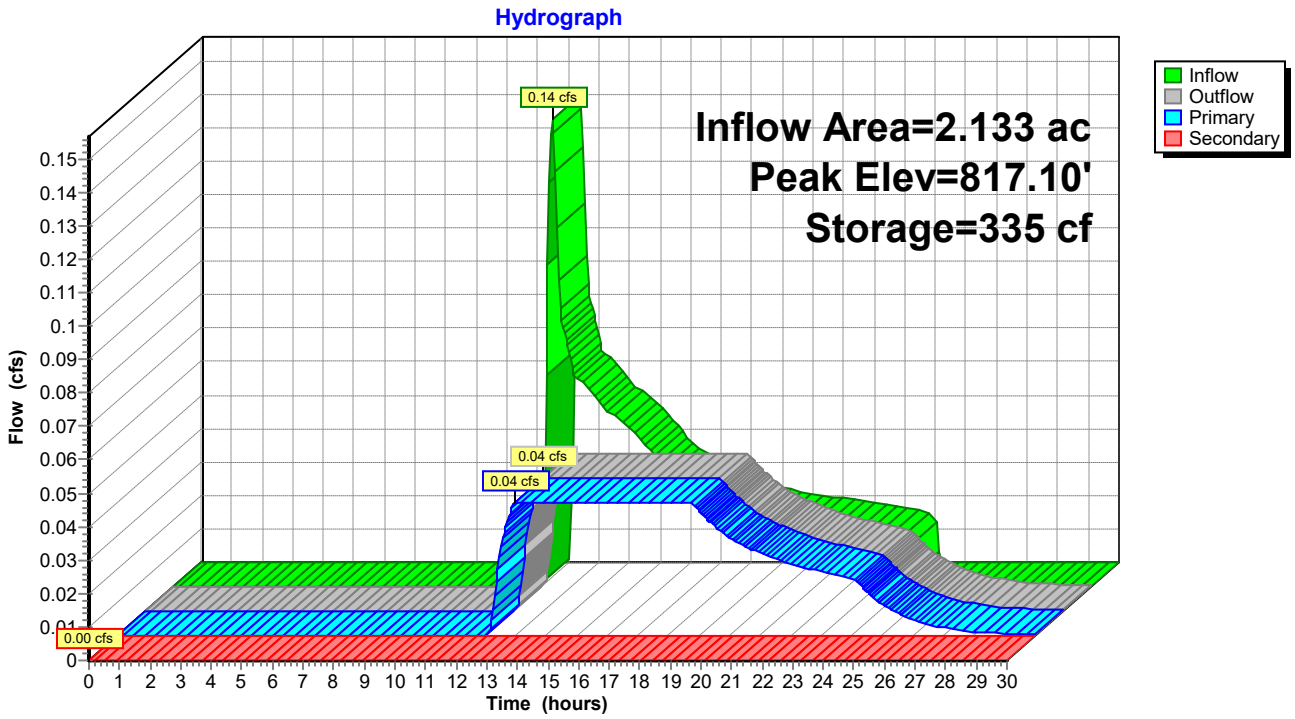
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
817.00	3,316	0	0
818.00	4,993	4,155	4,155
820.00	6,749	11,742	15,897

Device	Routing	Invert	Outlet Devices
#1	Secondary	819.50'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	815.40'	**6.0" Round Culvert** L= 42.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 815.40' / 815.00' S= 0.0095 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	815.40'	**Special & User-Defined** Head (feet) 0.00 1.00 2.00 3.00 4.00 6.00 8.00 Disch. (cfs) 0.000 0.040 0.040 0.040 0.040 0.040 0.040

Primary OutFlow Max=0.04 cfs @ 13.00 hrs HW=817.06' (Free Discharge)
└**2=Culvert** (Passes 0.04 cfs of 0.89 cfs potential flow)
└**3=Special & User-Defined** (Custom Controls 0.04 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=817.00' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond DB1: TO DP#1



Summary for Pond DB11: TO WETLAND

[44] Hint: Outlet device #3 is below defined storage

Inflow Area = 17.764 ac, 1.27% Impervious, Inflow Depth = 0.01" for 2-Year event
Inflow = 0.02 cfs @ 15.86 hrs, Volume= 0.010 af
Outflow = 0.01 cfs @ 23.51 hrs, Volume= 0.009 af, Atten= 44%, Lag= 459.4 min
Primary = 0.01 cfs @ 23.51 hrs, Volume= 0.009 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 882.01' @ 23.51 hrs Surf.Area= 13,123 sf Storage= 189 cf

Plug-Flow detention time= 270.7 min calculated for 0.009 af (83% of inflow)
Center-of-Mass det. time= 213.3 min (1,345.4 - 1,132.2)

Volume	Invert	Avail.Storage	Storage Description
#1	882.00'	67,293 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

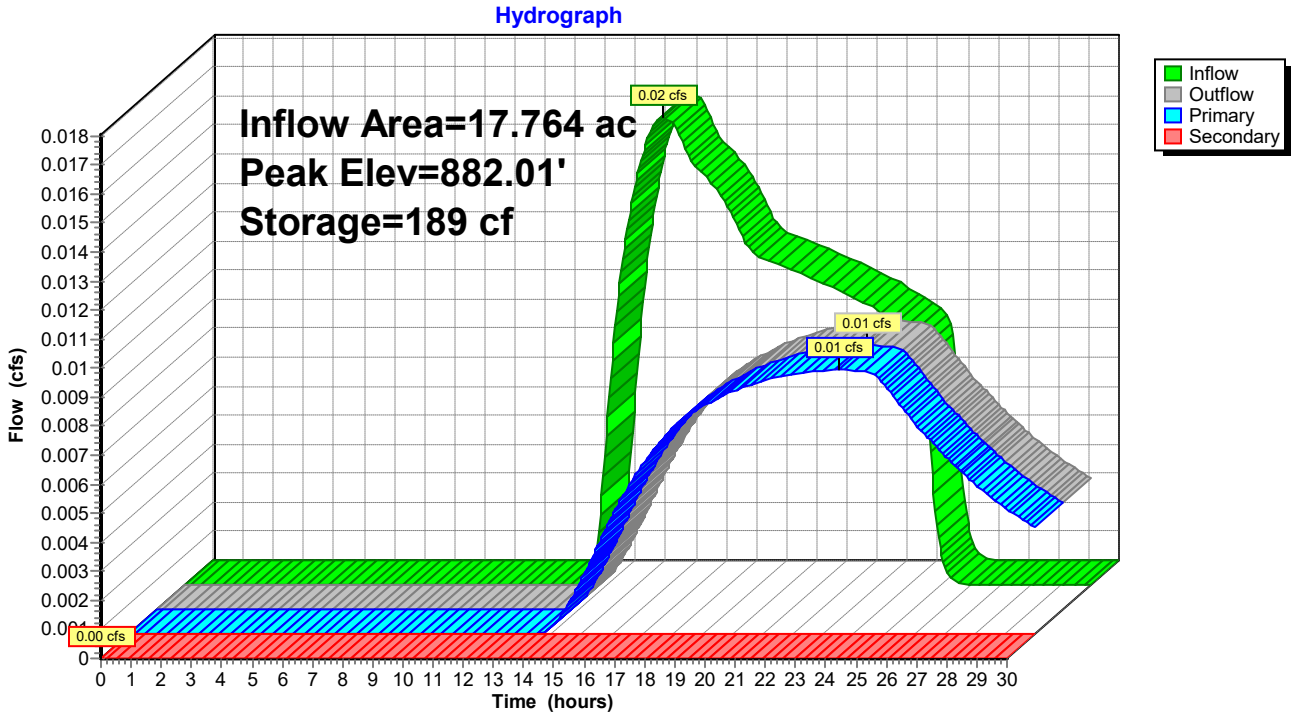
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
882.00	13,097	0	0
884.00	16,644	29,741	29,741
886.00	20,908	37,552	67,293

Device	Routing	Invert	Outlet Devices
#1	Secondary	885.00'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	879.37'	**12.0" Round Culvert** L= 36.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 879.37' / 878.00' S= 0.0381 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	879.70'	**Special & User-Defined** Head (feet) 0.00 1.00 15.00 Disch. (cfs) 0.000 0.080 0.080
#4	Device 2	883.80'	**3.0" Vert. Orifice/Grate** C= 0.600
#5	Device 2	884.50'	**2.1' long Sharp-Crested Rectangular Weir X 3.00** 2 End Contraction(s) 0.5' Crest Height

Primary OutFlow Max=0.08 cfs @ 23.51 hrs HW=882.01' (Free Discharge)
└**2=Culvert** (Passes 0.08 cfs of 4.37 cfs potential flow)
  ├**3=Special & User-Defined** (Custom Controls 0.08 cfs)
  ├**4=Orifice/Grate** (Controls 0.00 cfs)
  └**5=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=882.00' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond DB11: TO WETLAND



Summary for Pond DB12: TO DP12

[44] Hint: Outlet device #3 is below defined storage

Inflow Area = 7.158 ac, 0.00% Impervious, Inflow Depth = 0.03" for 2-Year event
Inflow = 0.03 cfs @ 15.61 hrs, Volume= 0.021 af
Outflow = 0.03 cfs @ 18.06 hrs, Volume= 0.021 af, Atten= 18%, Lag= 146.7 min
Primary = 0.03 cfs @ 18.06 hrs, Volume= 0.021 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 884.04' @ 18.06 hrs Surf.Area= 3,679 sf Storage= 152 cf

Plug-Flow detention time= 100.8 min calculated for 0.020 af (99% of inflow)
Center-of-Mass det. time= 99.6 min (1,226.9 - 1,127.3)

Volume	Invert	Avail.Storage	Storage Description
#1	884.00'	17,157 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

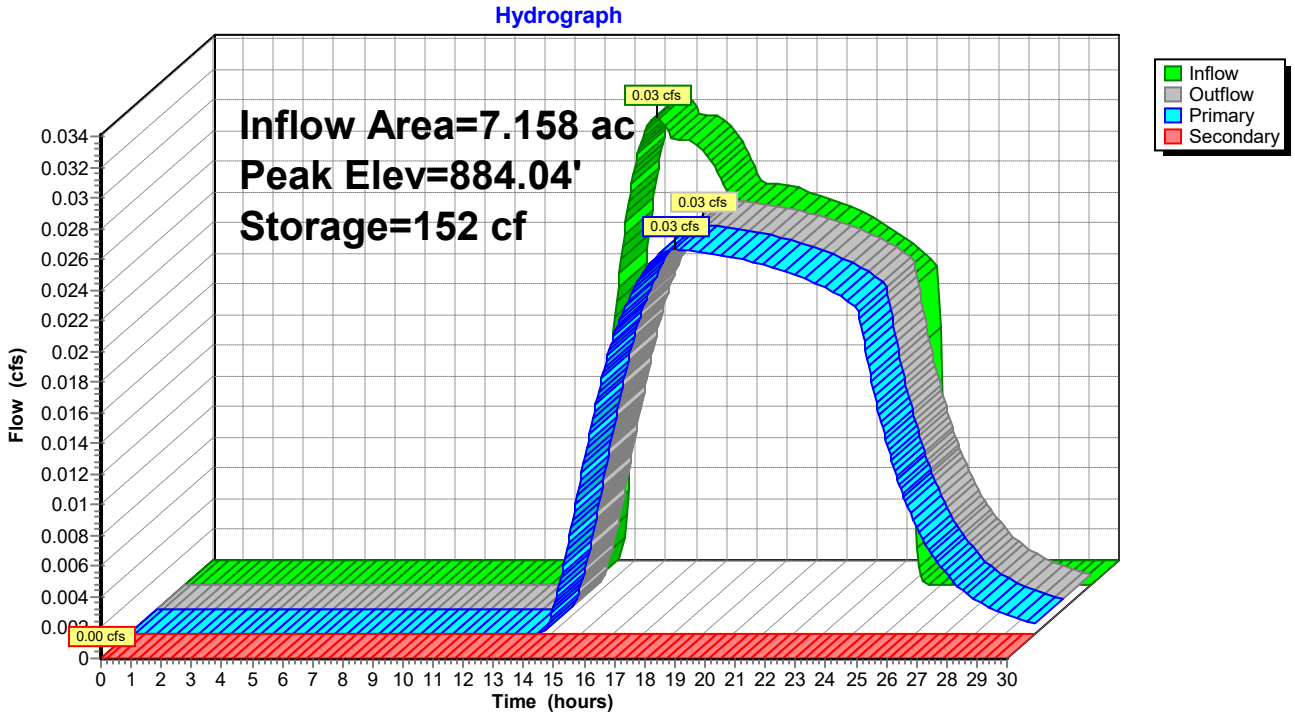
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
884.00	3,625	0	0
886.00	6,239	9,864	9,864
887.00	8,347	7,293	17,157

Device	Routing	Invert	Outlet Devices
#1	Secondary	886.00'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	882.10'	**12.0" Round Culvert** L= 28.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 882.10' / 881.50' S= 0.0214 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	882.30'	**Special & User-Defined** Head (feet) 0.00 1.00 15.00 Disch. (cfs) 0.000 0.080 0.080
#4	Device 2	884.80'	**6.0" Vert. Orifice/Grate X 3.00** C= 0.600
#5	Device 2	885.75'	**2.1' long Sharp-Crested Rectangular Weir X 3.00** 2 End Contraction(s) 0.5' Crest Height

Primary OutFlow Max=0.08 cfs @ 18.06 hrs HW=884.04' (Free Discharge)
└**2=Culvert** (Passes 0.08 cfs of 3.58 cfs potential flow)
  ├**3=Special & User-Defined** (Custom Controls 0.08 cfs)
  ├**4=Orifice/Grate** (Controls 0.00 cfs)
  └**5=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=884.00' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond DB12: TO DP12



Summary for Pond DB13: TO DP#12

[62] Hint: Exceeded Reach DMH2 OUTLET depth by 0.53' @ 24.70 hrs

Inflow Area = 3.476 ac, 6.03% Impervious, Inflow Depth = 0.28" for 2-Year event
Inflow = 0.53 cfs @ 12.18 hrs, Volume= 0.081 af
Outflow = 0.10 cfs @ 14.41 hrs, Volume= 0.053 af, Atten= 80%, Lag= 133.7 min
Primary = 0.10 cfs @ 14.41 hrs, Volume= 0.053 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 892.59' @ 14.41 hrs Surf.Area= 2,998 sf Storage= 1,464 cf

Plug-Flow detention time= 276.2 min calculated for 0.053 af (65% of inflow)
Center-of-Mass det. time= 148.6 min (1,076.1 - 927.5)

Volume	Invert	Avail.Storage	Storage Description
#1	892.00'	14,332 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

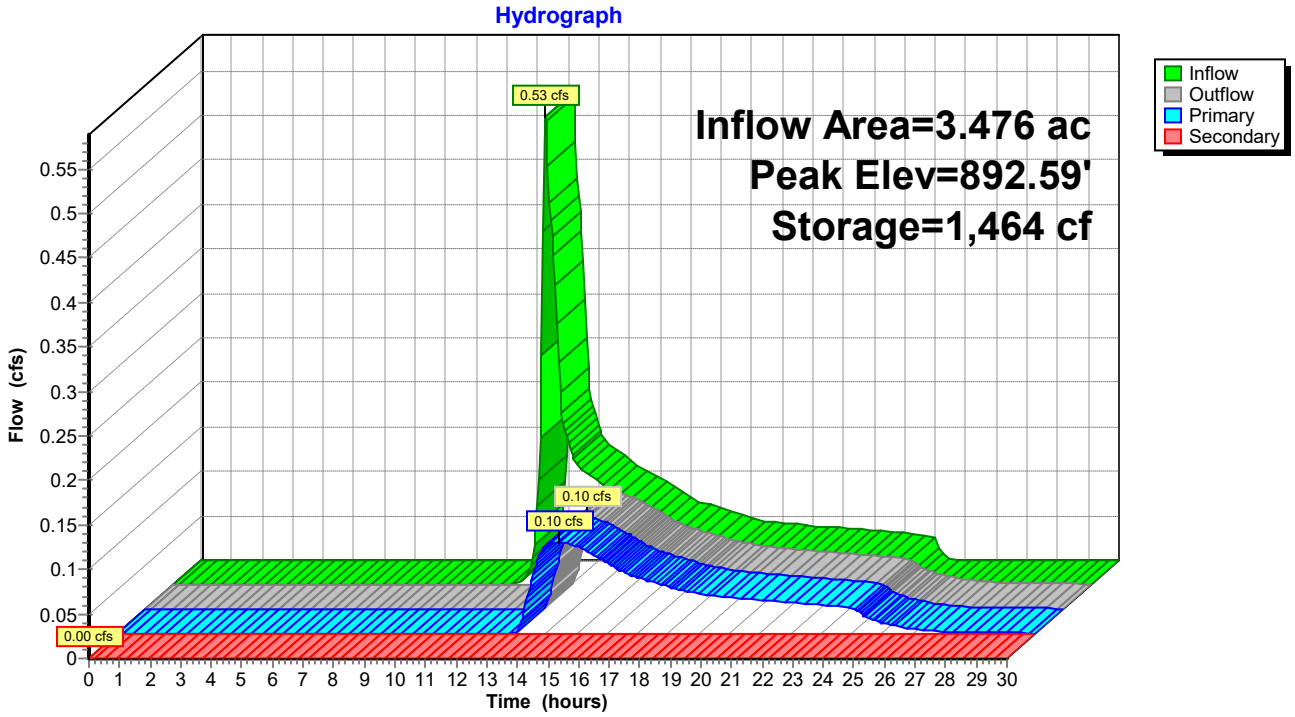
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
892.00	1,954	0	0
894.00	5,483	7,437	7,437
895.00	8,307	6,895	14,332

Device	Routing	Invert	Outlet Devices
#1	Secondary	894.00'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	890.00'	**12.0" Round Culvert** L= 38.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 890.00' / 888.00' S= 0.0526 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	893.50'	**2.6' long Sharp-Crested Rectangular Weir X 3.00** 2 End Contraction(s) 0.5' Crest Height
#4	Device 2	892.50'	**6.0" Vert. Orifice/Grate X 4.00** C= 0.600
#5	Device 2	893.00'	**3.0" Vert. Orifice/Grate X 3.00** C= 0.600

Primary OutFlow Max=0.10 cfs @ 14.41 hrs HW=892.59' (Free Discharge)
└**2=Culvert** (Passes 0.10 cfs of 4.32 cfs potential flow)
  ├**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
  ├**4=Orifice/Grate** (Orifice Controls 0.10 cfs @ 1.03 fps)
  └**5=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=892.00' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond DB13: TO DP#12



Summary for Pond DB14: TO DP#14

[44] Hint: Outlet device #3 is below defined storage

Inflow Area = 1.193 ac, 0.00% Impervious, Inflow Depth = 0.21" for 2-Year event
Inflow = 0.10 cfs @ 12.35 hrs, Volume= 0.021 af
Outflow = 0.04 cfs @ 13.53 hrs, Volume= 0.021 af, Atten= 62%, Lag= 70.9 min
Primary = 0.04 cfs @ 13.53 hrs, Volume= 0.021 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 902.06' @ 13.53 hrs Surf.Area= 2,135 sf Storage= 132 cf

Plug-Flow detention time= 59.7 min calculated for 0.021 af (100% of inflow)
Center-of-Mass det. time= 59.6 min (1,021.8 - 962.2)

Volume	Invert	Avail.Storage	Storage Description
#1	902.00'	15,766 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

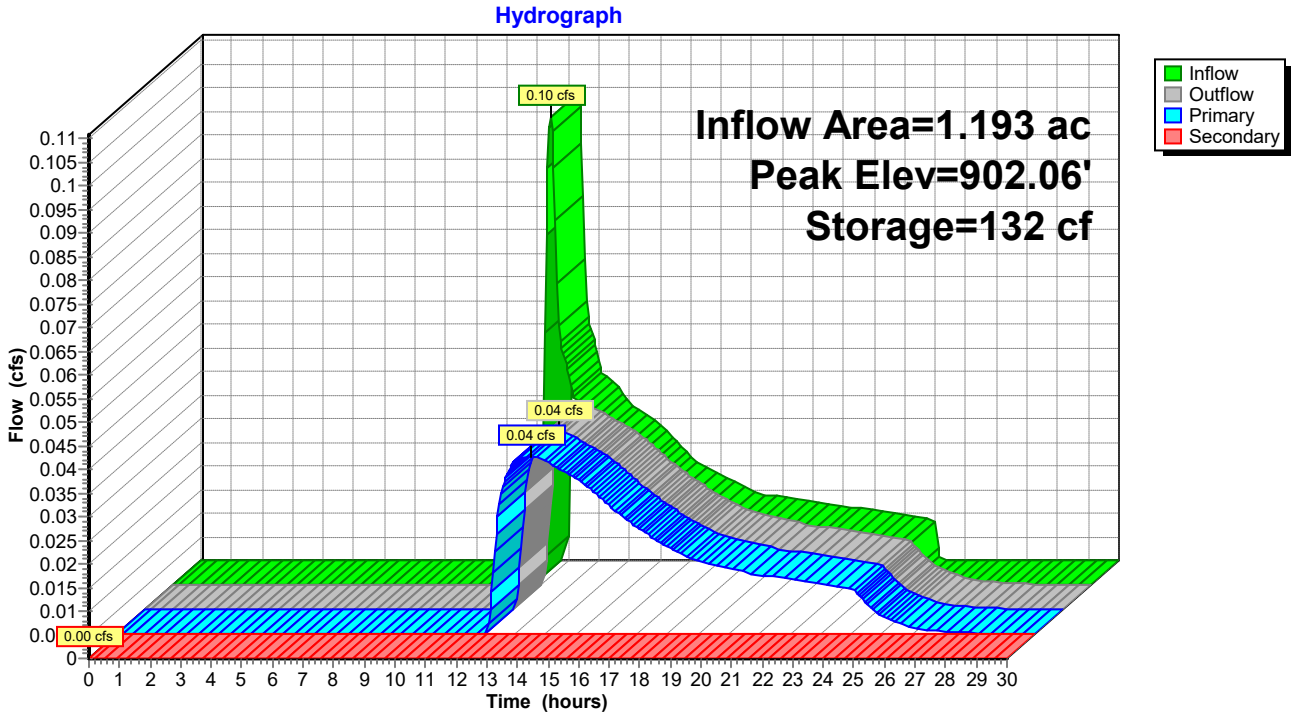
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
902.00	2,080	0	0
904.00	3,830	5,910	5,910
906.00	6,026	9,856	15,766

Device	Routing	Invert	Outlet Devices
#1	Secondary	905.00'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	900.30'	**4.0" Round Culvert** L= 50.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 900.30' / 898.00' S= 0.0460 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.09 sf
#3	Device 2	900.40'	**Special & User-Defined** Head (feet) 0.00 1.00 15.00 Disch. (cfs) 0.000 0.080 0.080

Primary OutFlow Max=0.08 cfs @ 13.53 hrs HW=902.06' (Free Discharge)
2=Culvert (Passes 0.08 cfs of 0.42 cfs potential flow)
3=Special & User-Defined (Custom Controls 0.08 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=902.00' (Free Discharge)
1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond DB14: TO DP#14



Summary for Pond DB2: TO DP#1

[44] Hint: Outlet device #4 is below defined storage

Inflow Area = 5.809 ac, 0.00% Impervious, Inflow Depth = 0.25" for 2-Year event
Inflow = 0.60 cfs @ 12.38 hrs, Volume= 0.120 af
Outflow = 0.04 cfs @ 12.30 hrs, Volume= 0.059 af, Atten= 93%, Lag= 0.0 min
Primary = 0.04 cfs @ 12.30 hrs, Volume= 0.059 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 807.90' @ 24.07 hrs Surf.Area= 4,648 sf Storage= 3,506 cf

Plug-Flow detention time= 475.4 min calculated for 0.059 af (49% of inflow)
Center-of-Mass det. time= 312.0 min (1,266.9 - 954.9)

Volume	Invert	Avail.Storage	Storage Description
#1	807.00'	17,094 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

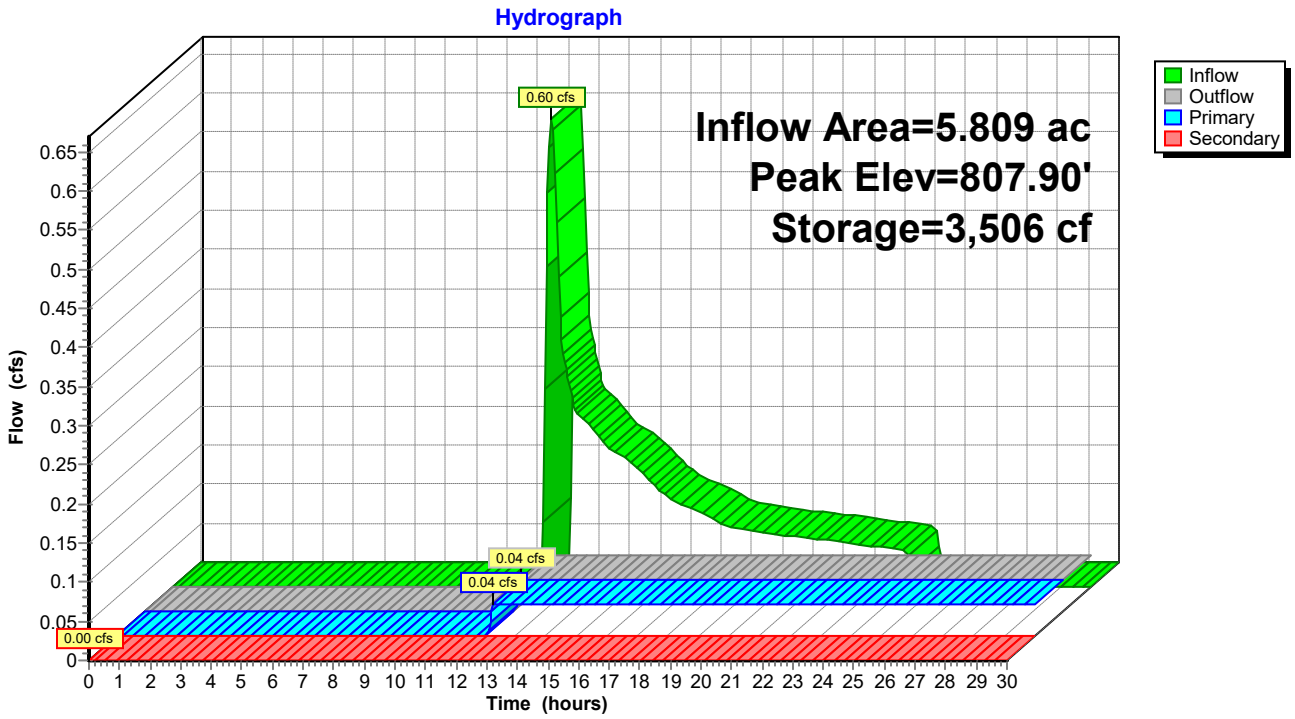
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
807.00	3,109	0	0
808.00	4,812	3,961	3,961
810.00	8,321	13,133	17,094

Device	Routing	Invert	Outlet Devices
#1	Secondary	809.00'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	806.30'	**12.0" Round Culvert** L= 29.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 806.30' / 806.00' S= 0.0103 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf
#3	Device 2	808.50'	**2.6' long Sharp-Crested Rectangular Weir X 3.00** 2 End Contraction(s) 0.5' Crest Height
#4	Device 2	806.00'	**Special & User-Defined** Head (feet) 0.00 1.00 2.00 3.00 4.00 6.00 8.00 Disch. (cfs) 0.000 0.040 0.040 0.040 0.040 0.040 0.040

Primary OutFlow Max=0.04 cfs @ 12.30 hrs HW=807.08' (Free Discharge)
└**2=Culvert** (Passes 0.04 cfs of 1.97 cfs potential flow)
  ├**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
  └**4=Special & User-Defined** (Custom Controls 0.04 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=807.00' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond DB2: TO DP#1



Summary for Pond DB3: TO DP#2

[44] Hint: Outlet device #3 is below defined storage

Inflow Area = 1.471 ac, 0.00% Impervious, Inflow Depth = 0.01" for 2-Year event
Inflow = 0.00 cfs @ 21.50 hrs, Volume= 0.002 af
Outflow = 0.00 cfs @ 21.65 hrs, Volume= 0.002 af, Atten= 0%, Lag= 8.9 min
Primary = 0.00 cfs @ 21.65 hrs, Volume= 0.002 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 856.00' @ 21.65 hrs Surf.Area= 3,492 sf Storage= 1 cf

Plug-Flow detention time= 4.9 min calculated for 0.002 af (100% of inflow)
Center-of-Mass det. time= 4.8 min (1,218.2 - 1,213.5)

Volume	Invert	Avail.Storage	Storage Description
#1	856.00'	8,610 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

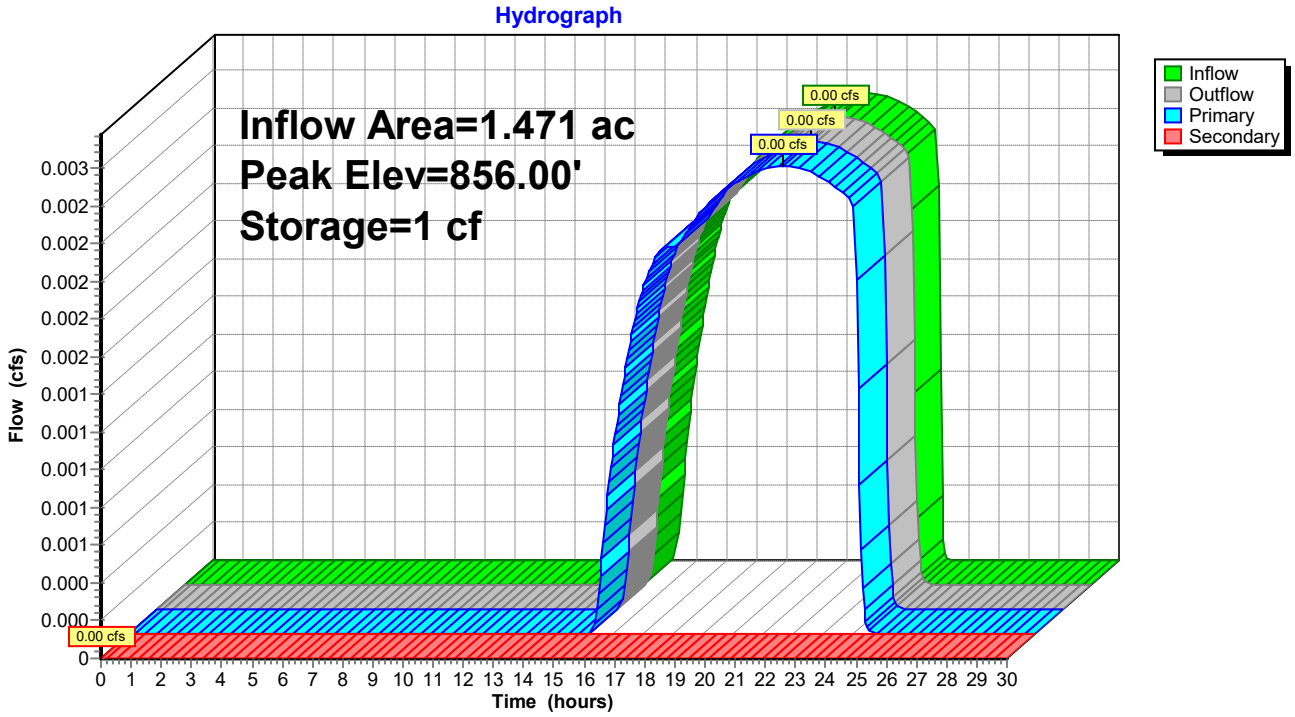
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
856.00	3,492	0	0
858.00	5,118	8,610	8,610

Device	Routing	Invert	Outlet Devices
#1	Secondary	857.00'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	854.50'	**6.0" Round Culvert** L= 46.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 854.50' / 854.00' S= 0.0109 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	854.50'	**Special & User-Defined** Head (feet) 0.00 1.00 2.00 3.00 4.00 6.00 Disch. (cfs) 0.000 0.550 0.550 0.550 0.550 0.550

Primary OutFlow Max=0.55 cfs @ 21.65 hrs HW=856.00' (Free Discharge)
↑—**2=Culvert** (Passes 0.55 cfs of 0.83 cfs potential flow)
↑—**3=Special & User-Defined** (Custom Controls 0.55 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=856.00' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond DB3: TO DP#2



Summary for Pond DB4: TO DP#2

[44] Hint: Outlet device #3 is below defined storage

Inflow Area = 1.454 ac, 3.28% Impervious, Inflow Depth = 0.00" for 2-Year event
Inflow = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af, Atten= 1%, Lag= 0.0 min
Primary = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 888.00' @ 24.00 hrs Surf.Area= 5,735 sf Storage= 0 cf

Plug-Flow detention time= 6.3 min calculated for 0.000 af (100% of inflow)
Center-of-Mass det. time= 6.3 min (1,371.3 - 1,365.0)

Volume	Invert	Avail.Storage	Storage Description
#1	888.00'	15,032 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

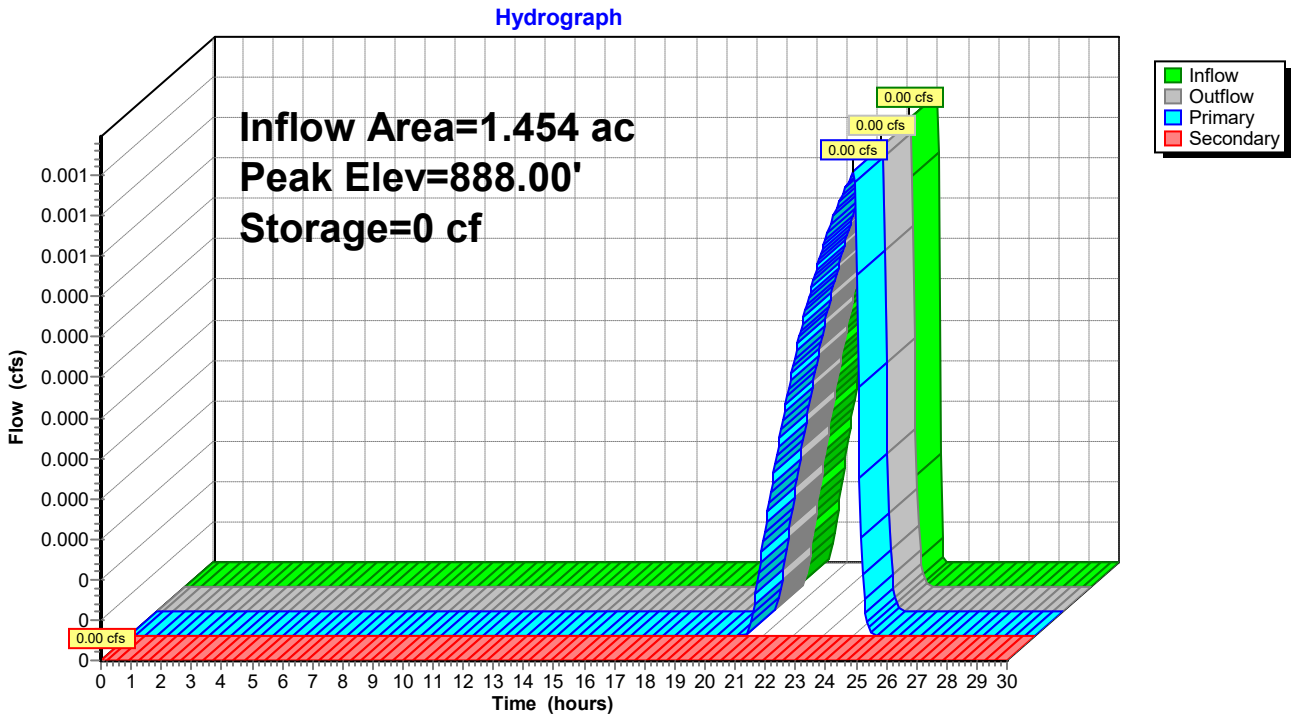
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
888.00	5,735	0	0
890.00	9,297	15,032	15,032

Device	Routing	Invert	Outlet Devices
#1	Secondary	889.00'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	885.60'	**6.0" Round Culvert** L= 34.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 885.60' / 885.00' S= 0.0176 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	885.60'	**Special & User-Defined** Head (feet) 0.00 1.00 2.00 3.00 4.00 6.00 Disch. (cfs) 0.000 0.550 0.550 0.550 0.550 0.550

Primary OutFlow Max=0.55 cfs @ 24.00 hrs HW=888.00' (Free Discharge)
↑**2=Culvert** (Passes 0.55 cfs of 1.09 cfs potential flow)
↑**3=Special & User-Defined** (Custom Controls 0.55 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=888.00' (Free Discharge)
↑**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond DB4: TO DP#2



Summary for Pond DB5: TO DP#2

[44] Hint: Outlet device #3 is below defined storage

Inflow Area = 1.032 ac, 3.16% Impervious, Inflow Depth = 0.01" for 2-Year event
Inflow = 0.00 cfs @ 21.36 hrs, Volume= 0.001 af
Outflow = 0.00 cfs @ 21.41 hrs, Volume= 0.001 af, Atten= 0%, Lag= 2.9 min
Primary = 0.00 cfs @ 21.41 hrs, Volume= 0.001 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 866.00' @ 21.41 hrs Surf.Area= 1,232 sf Storage= 0 cf

Plug-Flow detention time= 1.7 min calculated for 0.001 af (100% of inflow)
Center-of-Mass det. time= 1.7 min (1,206.9 - 1,205.2)

Volume	Invert	Avail.Storage	Storage Description
#1	866.00'	4,204 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

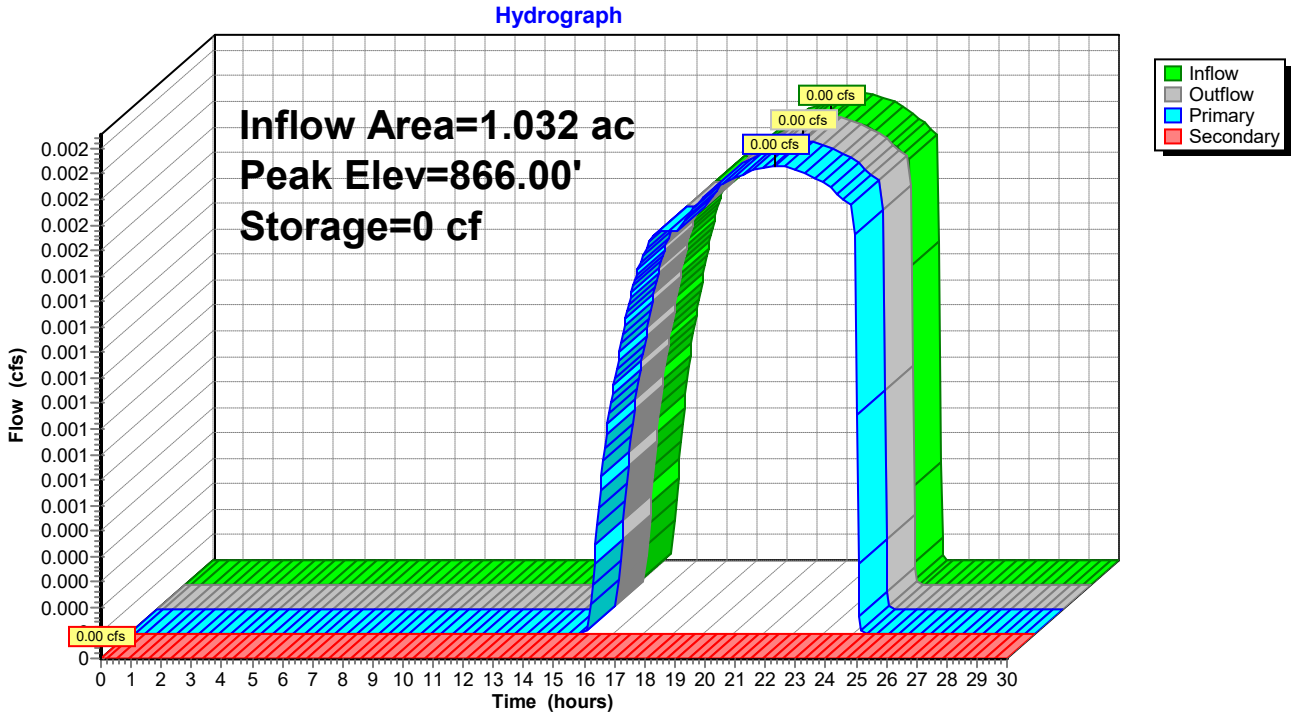
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
866.00	1,232	0	0
868.00	2,972	4,204	4,204

Device	Routing	Invert	Outlet Devices
#1	Secondary	867.00'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	864.50'	**6.0" Round Culvert** L= 26.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 864.50' / 864.00' S= 0.0192 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	864.50'	**Special & User-Defined** Head (feet) 0.00 1.00 2.00 4.00 6.00 Disch. (cfs) 0.000 0.550 0.550 0.550 0.550

Primary OutFlow Max=0.55 cfs @ 21.41 hrs HW=866.00' (Free Discharge)
↑**2=Culvert** (Passes 0.55 cfs of 0.83 cfs potential flow)
↑**3=Special & User-Defined** (Custom Controls 0.55 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=866.00' (Free Discharge)
↑**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond DB5: TO DP#2



Summary for Pond SB1: TO DB#11

Inflow Area = 11.353 ac, 1.93% Impervious, Inflow Depth = 0.00" for 2-Year event
Inflow = 0.00 cfs @ 24.20 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 885.01' @ 27.00 hrs Surf.Area= 1,143 sf Storage= 15 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	885.00'	6,749 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

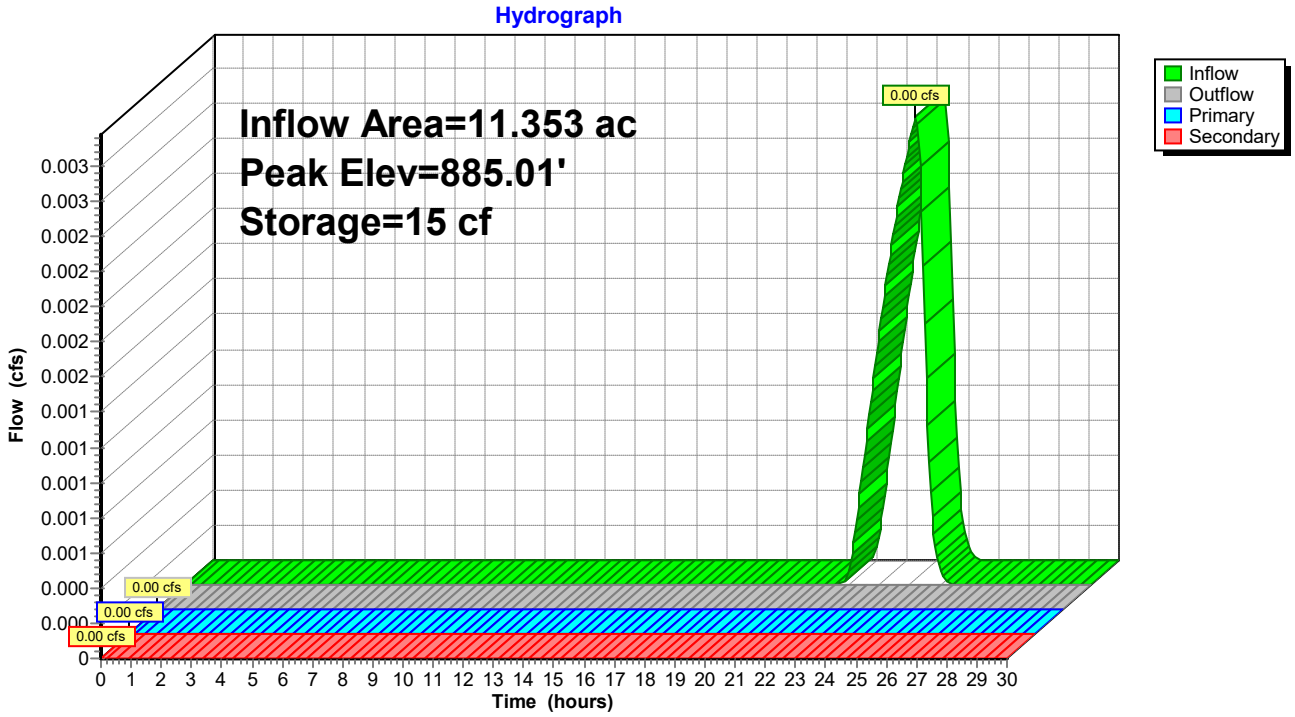
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
885.00	1,134	0	0
886.00	1,773	1,454	1,454
888.00	3,522	5,295	6,749

Device	Routing	Invert	Outlet Devices
#1	Primary	885.50'	**12.0" Round Culvert** L= 51.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 885.50' / 883.00' S= 0.0490 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	887.00'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=885.00' (Free Discharge)
1=Culvert (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=885.00' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond SB1: TO DB#11



Summary for Pond SB1-OLD: TO DP#2

[62] Hint: Exceeded Reach DMH-C OUTLET depth by 1.50' @ 25.80 hrs

Inflow Area = 2.265 ac, 25.48% Impervious, Inflow Depth = 0.63" for 2-Year event
Inflow = 1.32 cfs @ 12.07 hrs, Volume= 0.120 af
Outflow = 0.04 cfs @ 17.61 hrs, Volume= 0.018 af, Atten= 97%, Lag= 332.3 min
Primary = 0.04 cfs @ 17.61 hrs, Volume= 0.018 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 880.51' @ 17.61 hrs Surf.Area= 3,582 sf Storage= 4,480 cf

Plug-Flow detention time= 628.2 min calculated for 0.018 af (15% of inflow)
Center-of-Mass det. time= 401.8 min (1,214.9 - 813.1)

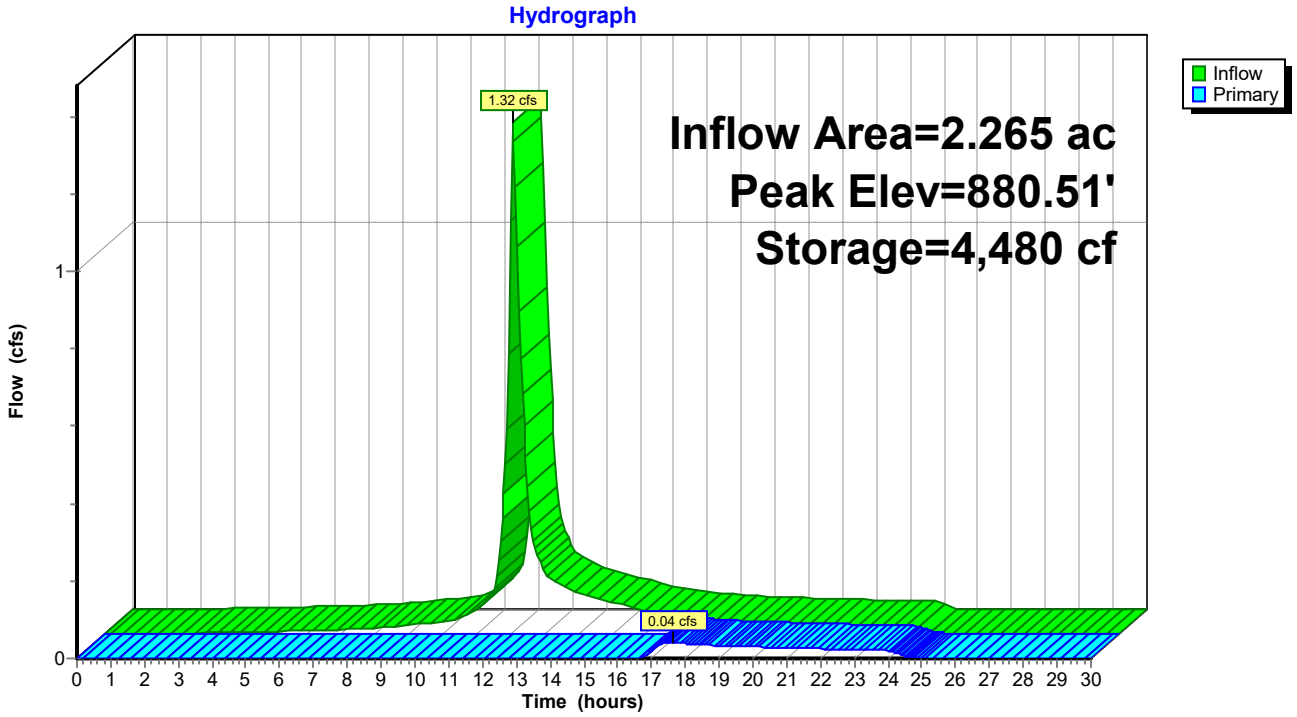
Volume	Invert	Avail.Storage	Storage Description
#1	879.00'	6,327 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
879.00	2,346	0	0
881.00	3,981	6,327	6,327

Device	Routing	Invert	Outlet Devices
#1	Primary	880.50'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.03 cfs @ 17.61 hrs HW=880.51' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 0.03 cfs @ 0.27 fps)

Pond SB1-OLD: TO DP#2



Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment P11: TO DP #1 Runoff Area=841,459 sf 0.68% Impervious Runoff Depth=0.30"
Flow Length=1,169' Tc=14.9 min CN=45 Runoff=1.86 cfs 0.480 af

Subcatchment P111: TO 1P Runoff Area=494,552 sf 1.93% Impervious Runoff Depth=0.15"
Flow Length=1,156' Tc=23.2 min CN=41 Runoff=0.24 cfs 0.145 af

Subcatchment P112: TO DB11 Runoff Area=168,295 sf 0.17% Impervious Runoff Depth=0.11"
Flow Length=644' Tc=11.8 min CN=39 Runoff=0.06 cfs 0.037 af

Subcatchment P113: TO DB11 Runoff Area=110,958 sf 0.00% Impervious Runoff Depth=0.38"
Flow Length=350' Tc=11.3 min CN=47 Runoff=0.40 cfs 0.081 af

Subcatchment P114: P114 Runoff Area=242,907 sf 0.00% Impervious Runoff Depth=0.05"
Flow Length=635' Tc=27.8 min CN=36 Runoff=0.03 cfs 0.022 af

Subcatchment P12: TO BASIN #2 Runoff Area=253,045 sf 0.00% Impervious Runoff Depth=0.85"
Flow Length=915' Tc=9.8 min CN=57 Runoff=3.95 cfs 0.413 af

Subcatchment P121: TO DP12 Runoff Area=847,404 sf 0.00% Impervious Runoff Depth=0.28"
Flow Length=1,458' Tc=36.2 min CN=44 Runoff=1.19 cfs 0.450 af

Subcatchment P122: TO DB12 Runoff Area=311,821 sf 0.00% Impervious Runoff Depth=0.33"
Flow Length=577' Tc=10.5 min CN=46 Runoff=0.91 cfs 0.199 af

Subcatchment P123: TO D.BASIN#13 Runoff Area=121,880 sf 0.00% Impervious Runoff Depth=0.63"
Flow Length=460' Tc=8.4 min CN=53 Runoff=1.20 cfs 0.148 af

Subcatchment P13: TO BASIN#1 Runoff Area=92,916 sf 0.00% Impervious Runoff Depth=0.73"
Flow Length=853' Tc=7.5 min CN=55 Runoff=1.21 cfs 0.130 af

Subcatchment P131: TO DP131 Runoff Area=245,753 sf 0.00% Impervious Runoff Depth=0.63"
Flow Length=308' Tc=15.2 min CN=53 Runoff=2.01 cfs 0.298 af

Subcatchment P141: TO DP14 Runoff Area=72,092 sf 0.00% Impervious Runoff Depth=0.49"
Flow Length=626' Tc=19.4 min CN=50 Runoff=0.36 cfs 0.068 af

Subcatchment P142: TO D-BASIN#14 Runoff Area=51,980 sf 0.00% Impervious Runoff Depth=0.78"
Flow Length=75' Slope=0.0500 '/' Tc=5.6 min CN=56 Runoff=0.82 cfs 0.078 af

Subcatchment P151: TO DP15 Runoff Area=42,383 sf 10.17% Impervious Runoff Depth=1.29"
Flow Length=185' Tc=7.5 min CN=64 Runoff=1.27 cfs 0.105 af

Subcatchment P161: TO DP16 Runoff Area=60,411 sf 10.83% Impervious Runoff Depth=1.10"
Flow Length=635' Tc=20.5 min CN=61 Runoff=1.04 cfs 0.128 af

Subcatchment P21: TO DP#2 Runoff Area=1,361,392 sf 0.70% Impervious Runoff Depth=0.08"
Flow Length=2,645' Tc=74.2 min CN=38 Runoff=0.31 cfs 0.205 af

Subcatchment P21A: TO SB1 Runoff Area=55,508 sf 0.00% Impervious Runoff Depth=0.14"
Flow Length=325' Slope=0.0900 '/' Tc=5.3 min CN=40 Runoff=0.03 cfs 0.015 af

Subcatchment P21B: TO DCB-F Runoff Area=4,375 sf 49.10% Impervious Runoff Depth=1.53"
Flow Length=103' Tc=5.0 min CN=68 Runoff=0.17 cfs 0.013 af

Subcatchment P22: TO BASIN#3 Runoff Area=64,084 sf 0.00% Impervious Runoff Depth=0.24"
Flow Length=660' Tc=6.6 min CN=44 Runoff=0.11 cfs 0.030 af

Subcatchment P23: TO BASIN #4 Runoff Area=63,337 sf 3.28% Impervious Runoff Depth=0.16"
Flow Length=180' Tc=5.0 min CN=41 Runoff=0.04 cfs 0.020 af

Subcatchment P24: TO BASIN#5 Runoff Area=44,933 sf 3.16% Impervious Runoff Depth=0.25"
Flow Length=385' Tc=5.0 min CN=44 Runoff=0.08 cfs 0.021 af

Subcatchment P25: TO DCB-D Runoff Area=2,108 sf 100.00% Impervious Runoff Depth=4.26"
Tc=0.0 min CN=98 Runoff=0.24 cfs 0.017 af

Subcatchment P26: TO DCB-A Runoff Area=19,626 sf 43.07% Impervious Runoff Depth=2.21"
Tc=0.0 min CN=77 Runoff=1.34 cfs 0.083 af

Subcatchment P27: TO DCB-B Runoff Area=8,741 sf 47.12% Impervious Runoff Depth=2.33"
Flow Length=286' Tc=5.0 min CN=78 Runoff=0.55 cfs 0.039 af

Subcatchment P28: TO DCB-C Runoff Area=4,121 sf 100.00% Impervious Runoff Depth=4.26"
Flow Length=286' Tc=5.0 min CN=98 Runoff=0.42 cfs 0.034 af

Subcatchment P29: TO DCB-D Runoff Area=4,188 sf 100.00% Impervious Runoff Depth=4.26"
Flow Length=280' Tc=5.0 min CN=98 Runoff=0.43 cfs 0.034 af

Subcatchment PS1: TO DCB#1 Runoff Area=17,260 sf 26.33% Impervious Runoff Depth=1.73"
Flow Length=210' Tc=7.3 min CN=71 Runoff=0.74 cfs 0.057 af

Subcatchment PS2: TO DCB#2 Runoff Area=12,294 sf 37.25% Impervious Runoff Depth=2.03"
Flow Length=225' Tc=5.0 min CN=75 Runoff=0.67 cfs 0.048 af

Reach 1R: (new Reach) Avg. Flow Depth=0.01' Max Vel=0.03 fps Inflow=0.08 cfs 0.109 af
n=0.400 L=268.0' S=0.0149 '/' Capacity=92.37 cfs Outflow=0.08 cfs 0.074 af

Reach 2R: WOODS Avg. Flow Depth=0.01' Max Vel=0.03 fps Inflow=0.10 cfs 0.072 af
n=0.400 L=429.0' S=0.0228 '/' Capacity=35.67 cfs Outflow=0.06 cfs 0.022 af

Reach 3R: GRASS Avg. Flow Depth=0.01' Max Vel=0.04 fps Inflow=0.04 cfs 0.060 af
n=0.240 L=14.0' S=0.0357 '/' Capacity=74.34 cfs Outflow=0.04 cfs 0.059 af

Reach 4R: (new Reach) Avg. Flow Depth=0.00' Max Vel=0.00 fps
3.0" Round Pipe n=0.020 L=100.0' S=0.0050 '/' Capacity=0.04 cfs Outflow=0.00 cfs 0.000 af

Reach 5R: WOODS Avg. Flow Depth=0.01' Max Vel=0.05 fps Inflow=0.10 cfs 0.096 af
n=0.400 L=75.0' S=0.0800 '/' Capacity=66.76 cfs Outflow=0.10 cfs 0.090 af

Reach 6R: WOODS Avg. Flow Depth=0.01' Max Vel=0.03 fps Inflow=0.04 cfs 0.059 af
n=0.400 L=259.0' S=0.0405 '/' Capacity=47.52 cfs Outflow=0.04 cfs 0.042 af

Reach 7R: GRASS Avg. Flow Depth=0.03' Max Vel=0.10 fps Inflow=0.70 cfs 0.280 af
n=0.240 L=20.0' S=0.0250 '/' Capacity=62.20 cfs Outflow=0.70 cfs 0.279 af

Reach 8R: WOODS Avg. Flow Depth=0.05' Max Vel=0.05 fps Inflow=0.70 cfs 0.279 af
n=0.400 L=222.0' S=0.0090 '/' Capacity=22.40 cfs Outflow=0.46 cfs 0.262 af

Reach 9R: WOODS-2 Avg. Flow Depth=0.02' Max Vel=0.03 fps Inflow=0.24 cfs 0.146 af
n=0.400 L=679.0' S=0.0147 '/' Capacity=28.64 cfs Outflow=0.12 cfs 0.071 af

Reach 10R: WOODS-1 Avg. Flow Depth=0.02' Max Vel=0.05 fps Inflow=0.90 cfs 0.133 af
n=0.400 L=400.0' S=0.0400 '/' Capacity=47.20 cfs Outflow=0.21 cfs 0.126 af

Reach 11R: WOODS-3 Avg. Flow Depth=0.02' Max Vel=0.02 fps Inflow=0.13 cfs 0.076 af
n=0.400 L=577.0' S=0.0035 '/' Capacity=13.90 cfs Outflow=0.00 cfs 0.000 af

Reach 12R: GRASS Avg. Flow Depth=0.00' Max Vel=0.06 fps Inflow=0.03 cfs 0.020 af
n=0.240 L=170.0' S=0.1000 '/' Capacity=124.39 cfs Outflow=0.03 cfs 0.020 af

Reach 13R: WOODS-4 Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.400 L=643.0' S=0.0124 '/' Capacity=26.33 cfs Outflow=0.00 cfs 0.000 af

Reach 14R: WOODS Avg. Flow Depth=0.01' Max Vel=0.03 fps Inflow=0.08 cfs 0.021 af
n=0.400 L=142.0' S=0.0563 '/' Capacity=56.02 cfs Outflow=0.03 cfs 0.021 af

Reach 15R: WOODS Avg. Flow Depth=0.01' Max Vel=0.03 fps Inflow=0.10 cfs 0.090 af
n=0.400 L=429.0' S=0.0284 '/' Capacity=39.80 cfs Outflow=0.09 cfs 0.043 af

Reach 16R: WOODS Avg. Flow Depth=0.01' Max Vel=0.02 fps Inflow=0.10 cfs 0.030 af
n=0.400 L=185.0' S=0.0227 '/' Capacity=35.56 cfs Outflow=0.04 cfs 0.029 af

Reach 17R: WOODS-2 Avg. Flow Depth=0.00' Max Vel=0.01 fps Inflow=0.03 cfs 0.021 af
n=0.400 L=474.0' S=0.0169 '/' Capacity=30.66 cfs Outflow=0.01 cfs 0.004 af

Reach 18R: WOODS-4 Avg. Flow Depth=0.01' Max Vel=0.01 fps Inflow=0.06 cfs 0.022 af
n=0.400 L=339.0' S=0.0059 '/' Capacity=18.13 cfs Outflow=0.00 cfs 0.000 af

Reach CB-A: TO DMH-X Avg. Flow Depth=0.43' Max Vel=4.16 fps Inflow=1.34 cfs 0.083 af
12.0" Round Pipe n=0.013 L=14.4' S=0.0097 '/' Capacity=3.51 cfs Outflow=1.33 cfs 0.083 af

Reach CB-B: TO DMH-A Avg. Flow Depth=0.27' Max Vel=3.28 fps Inflow=0.55 cfs 0.039 af
12.0" Round Pipe n=0.013 L=24.9' S=0.0100 '/' Capacity=3.57 cfs Outflow=0.55 cfs 0.039 af

Reach CB-D: TO DMH-B Avg. Flow Depth=0.22' Max Vel=3.40 fps Inflow=0.43 cfs 0.034 af
12.0" Round Pipe n=0.013 L=14.4' S=0.0139 '/' Capacity=4.20 cfs Outflow=0.42 cfs 0.034 af

Reach CB-E: TO DMH-B Avg. Flow Depth=0.13' Max Vel=3.88 fps Inflow=0.24 cfs 0.017 af
12.0" Round Pipe n=0.013 L=71.7' S=0.0317 '/' Capacity=6.34 cfs Outflow=0.24 cfs 0.017 af

Reach DCB-C: TO DMH-A Avg. Flow Depth=0.23' Max Vel=3.02 fps Inflow=0.42 cfs 0.034 af
12.0" Round Pipe n=0.013 L=24.9' S=0.0100 '/' Capacity=3.57 cfs Outflow=0.41 cfs 0.034 af

Reach DCB-F: (new Reach) Inflow=0.17 cfs 0.013 af
Outflow=0.17 cfs 0.013 af

Reach DCB1: TO DMH1 Avg. Flow Depth=0.27' Max Vel=4.42 fps Inflow=0.74 cfs 0.057 af
12.0" Round Pipe n=0.013 L=11.0' S=0.0182 '/' Capacity=4.80 cfs Outflow=0.74 cfs 0.057 af

Reach DCB2: TO DMH#1 Avg. Flow Depth=0.29' Max Vel=3.60 fps Inflow=0.67 cfs 0.048 af
12.0" Round Pipe n=0.013 L=18.0' S=0.0111 '/' Capacity=3.76 cfs Outflow=0.67 cfs 0.048 af

Reach DMH-A: TO DMH-D Avg. Flow Depth=0.42' Max Vel=2.98 fps Inflow=0.96 cfs 0.073 af
12.0" Round Pipe n=0.013 L=248.2' S=0.0050 '/' Capacity=2.52 cfs Outflow=0.90 cfs 0.073 af

Reach DMH-B: TO DMH-C Avg. Flow Depth=0.41' Max Vel=8.32 fps Inflow=2.54 cfs 0.220 af
12.0" Round Pipe n=0.013 L=114.3' S=0.0400 '/' Capacity=7.12 cfs Outflow=2.54 cfs 0.220 af

Reach DMH-C: TO S. BASIN Avg. Flow Depth=0.39' Max Vel=8.98 fps Inflow=2.54 cfs 0.220 af
12.0" Round Pipe n=0.013 L=189.0' S=0.0492 '/' Capacity=7.90 cfs Outflow=2.53 cfs 0.220 af

Reach DMH-D: TO DMH-B Avg. Flow Depth=0.41' Max Vel=6.12 fps Inflow=1.85 cfs 0.155 af
12.0" Round Pipe n=0.013 L=29.0' S=0.0224 '/' Capacity=5.33 cfs Outflow=1.84 cfs 0.155 af

Reach DMH1: TO DMH#2 Avg. Flow Depth=0.43' Max Vel=4.28 fps Inflow=1.39 cfs 0.105 af
12.0" Round Pipe n=0.013 L=215.0' S=0.0102 '/' Capacity=3.60 cfs Outflow=1.33 cfs 0.105 af

Reach DMH2: TO D.BASIN#13 Avg. Flow Depth=0.44' Max Vel=3.97 fps Inflow=1.33 cfs 0.105 af
12.0" Round Pipe n=0.013 L=220.0' S=0.0086 '/' Capacity=3.31 cfs Outflow=1.29 cfs 0.105 af

Reach DP1: DP#1 Inflow=1.86 cfs 0.785 af
Outflow=1.86 cfs 0.785 af

Reach DP12: DP12 Inflow=1.19 cfs 0.705 af
Outflow=1.19 cfs 0.705 af

Reach DP13: DP131 Inflow=2.01 cfs 0.298 af
Outflow=2.01 cfs 0.298 af

Reach DP14: DP14 Inflow=0.36 cfs 0.141 af
Outflow=0.36 cfs 0.141 af

Reach DP15: DP15 Inflow=1.27 cfs 0.105 af
Outflow=1.27 cfs 0.105 af

Reach DP16: DP16 Inflow=1.04 cfs 0.128 af
Outflow=1.04 cfs 0.128 af

Reach DP2: DP#2 Inflow=0.31 cfs 0.205 af
Outflow=0.31 cfs 0.205 af

Reach OL1: (new Reach) Avg. Flow Depth=0.01' Max Vel=0.10 fps Inflow=0.08 cfs 0.110 af
n=0.240 L=50.0' S=0.1200 '/' Capacity=222.51 cfs Outflow=0.08 cfs 0.109 af

Reach OL121: WOODS-4 Avg. Flow Depth=0.01' Max Vel=0.08 fps Inflow=0.19 cfs 0.161 af
n=0.400 L=40.0' S=0.1375 '/' Capacity=65.83 cfs Outflow=0.19 cfs 0.159 af

Reach OL122: WOODS-4 Avg. Flow Depth=0.03' Max Vel=0.03 fps Inflow=0.19 cfs 0.159 af
n=0.400 L=251.0' S=0.0060 '/' Capacity=18.25 cfs Outflow=0.15 cfs 0.119 af

Reach OL123: GRASS Avg. Flow Depth=0.05' Max Vel=0.18 fps Inflow=1.35 cfs 0.224 af
n=0.410 L=44.0' S=0.1364 '/' Capacity=63.96 cfs Outflow=1.32 cfs 0.224 af

Reach OL124: WOODS-4 Avg. Flow Depth=0.05' Max Vel=0.15 fps Inflow=1.32 cfs 0.224 af
n=0.400 L=64.0' S=0.0781 '/' Capacity=49.62 cfs Outflow=1.23 cfs 0.224 af

Reach OL125: WOODS-4 Avg. Flow Depth=0.04' Max Vel=0.04 fps Inflow=0.51 cfs 0.337 af
n=0.400 L=367.0' S=0.0068 '/' Capacity=19.48 cfs Outflow=0.28 cfs 0.254 af

Reach OL126: WOODS-4 Avg. Flow Depth=0.05' Max Vel=0.05 fps Inflow=1.23 cfs 0.224 af
n=0.400 L=185.0' S=0.0081 '/' Capacity=21.25 cfs Outflow=0.51 cfs 0.218 af

Reach OL141: WOODS Avg. Flow Depth=0.01' Max Vel=0.05 fps Inflow=0.08 cfs 0.078 af
n=0.400 L=261.0' S=0.0996 '/' Capacity=23.36 cfs Outflow=0.08 cfs 0.076 af

Reach OL142: WOODS Avg. Flow Depth=0.01' Max Vel=0.04 fps Inflow=0.08 cfs 0.076 af
n=0.400 L=116.0' S=0.0517 '/' Capacity=16.83 cfs Outflow=0.08 cfs 0.073 af

Reach SW1A: (new Reach) Avg. Flow Depth=0.09' Max Vel=1.06 fps Inflow=0.40 cfs 0.081 af
n=0.040 L=300.0' S=0.0225 '/' Capacity=125.94 cfs Outflow=0.39 cfs 0.081 af

Reach SW1B: (new Reach) Avg. Flow Depth=0.06' Max Vel=1.52 fps Inflow=0.39 cfs 0.081 af
n=0.040 L=255.0' S=0.0749 '/' Capacity=229.79 cfs Outflow=0.39 cfs 0.081 af

Reach SW2A: (new Reach) Avg. Flow Depth=0.07' Max Vel=0.81 fps Inflow=0.24 cfs 0.145 af
n=0.040 L=118.0' S=0.0169 '/' Capacity=109.31 cfs Outflow=0.24 cfs 0.145 af

Reach WETLAND: WETLAND Inflow=0.10 cfs 0.096 af
Outflow=0.10 cfs 0.096 af

Pond DB1: TO DP#1 Peak Elev=817.96' Storage=3,942 cf Inflow=1.21 cfs 0.130 af
Primary=0.04 cfs 0.060 af Secondary=0.00 cfs 0.000 af Outflow=0.04 cfs 0.060 af

Pond DB11: TO WETLAND Peak Elev=882.54' Storage=7,303 cf Inflow=0.40 cfs 0.247 af
Primary=0.08 cfs 0.110 af Secondary=0.00 cfs 0.000 af Outflow=0.08 cfs 0.110 af

Pond DB12: TO DP12 Peak Elev=884.89' Storage=3,758 cf Inflow=0.91 cfs 0.199 af
Primary=0.19 cfs 0.161 af Secondary=0.00 cfs 0.000 af Outflow=0.19 cfs 0.161 af

Pond DB13: TO DP#12 Peak Elev=892.88' Storage=2,404 cf Inflow=2.48 cfs 0.252 af
Primary=1.35 cfs 0.224 af Secondary=0.00 cfs 0.000 af Outflow=1.35 cfs 0.224 af

Pond DB14: TO DP#14 Peak Elev=902.56' Storage=1,290 cf Inflow=0.82 cfs 0.078 af
Primary=0.08 cfs 0.078 af Secondary=0.00 cfs 0.000 af Outflow=0.08 cfs 0.078 af

Pond DB2: TO DP#1 Peak Elev=808.58' Storage=7,064 cf Inflow=3.95 cfs 0.413 af
Primary=0.70 cfs 0.280 af Secondary=0.00 cfs 0.000 af Outflow=0.70 cfs 0.280 af

Pond DB3: TO DP#2 Peak Elev=856.01' Storage=28 cf Inflow=0.11 cfs 0.030 af
Primary=0.10 cfs 0.030 af Secondary=0.00 cfs 0.000 af Outflow=0.10 cfs 0.030 af

Pond DB4: TO DP#2 Peak Elev=888.00' Storage=13 cf Inflow=0.04 cfs 0.020 af
Primary=0.03 cfs 0.020 af Secondary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.020 af

Pond DB5: TO DP#2 Peak Elev=866.01' Storage=8 cf Inflow=0.08 cfs 0.021 af
Primary=0.08 cfs 0.021 af Secondary=0.00 cfs 0.000 af Outflow=0.08 cfs 0.021 af

Pond SB1: TO DB#11 Peak Elev=885.76' Storage=1,053 cf Inflow=0.24 cfs 0.145 af
Primary=0.23 cfs 0.129 af Secondary=0.00 cfs 0.000 af Outflow=0.23 cfs 0.129 af

Pond SB1-OLD: TO DP#2 Peak Elev=880.61' Storage=4,835 cf Inflow=2.53 cfs 0.235 af
Outflow=0.90 cfs 0.133 af

Total Runoff Area = 129.013 ac Runoff Volume = 3.396 af Average Runoff Depth = 0.32"
98.69% Pervious = 127.322 ac 1.31% Impervious = 1.691 ac

Summary for Subcatchment P11: TO DP #1

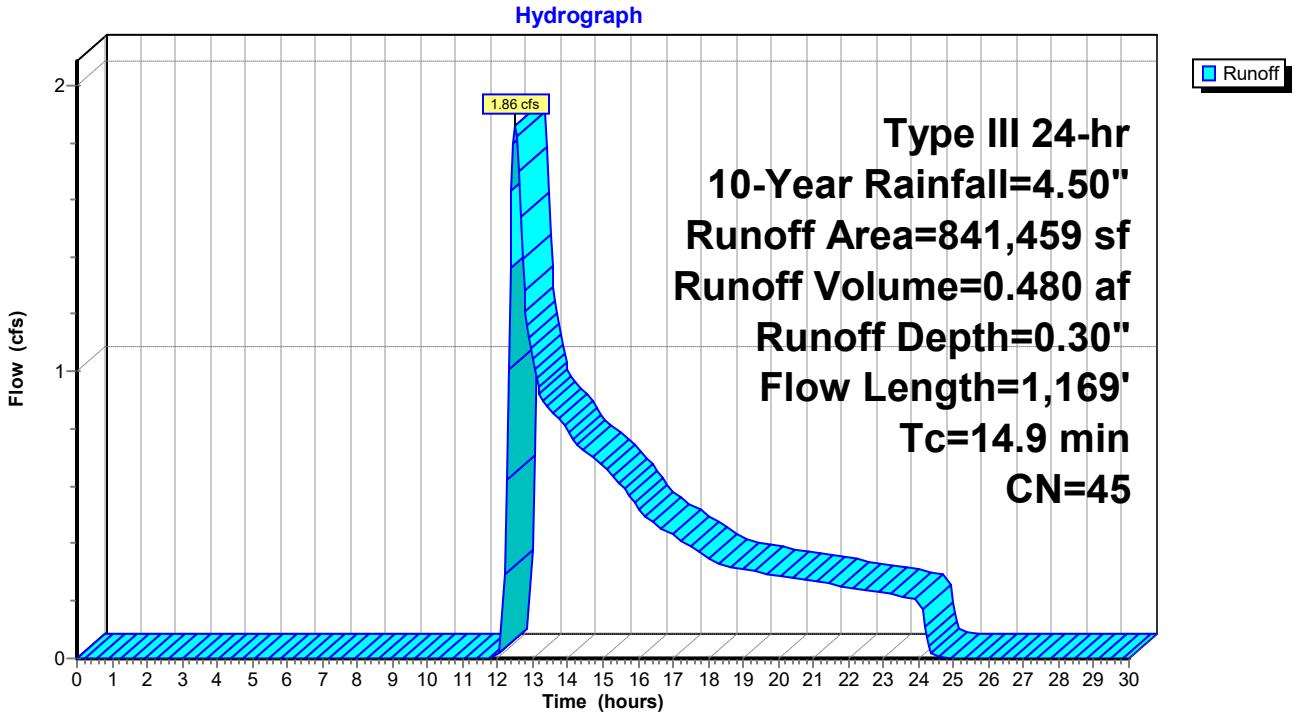
Runoff = 1.86 cfs @ 12.51 hrs, Volume= 0.480 af, Depth= 0.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.50"

Area (sf)	CN	Description
56,851	39	>75% Grass cover, Good, HSG A
81,519	30	Brush, Good, HSG A
427,679	30	Woods, Good, HSG A
45,535	74	>75% Grass cover, Good, HSG C
3,070	65	Brush, Good, HSG C
88,515	70	Woods, Good, HSG C
125,807	77	Woods, Good, HSG D
5,701	98	Paved parking, HSG B
6,782	61	>75% Grass cover, Good, HSG B
841,459	45	Weighted Average
835,758		99.32% Pervious Area
5,701		0.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.5	75	0.0830	0.27		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
1.3	361	0.0830	4.64		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
3.9	375	0.1010	1.59		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.4	144	0.1100	1.66		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.8	214	0.0350	0.94		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
14.9	1,169	Total			

Subcatchment P11: TO DP #1



Summary for Subcatchment P111: TO 1P

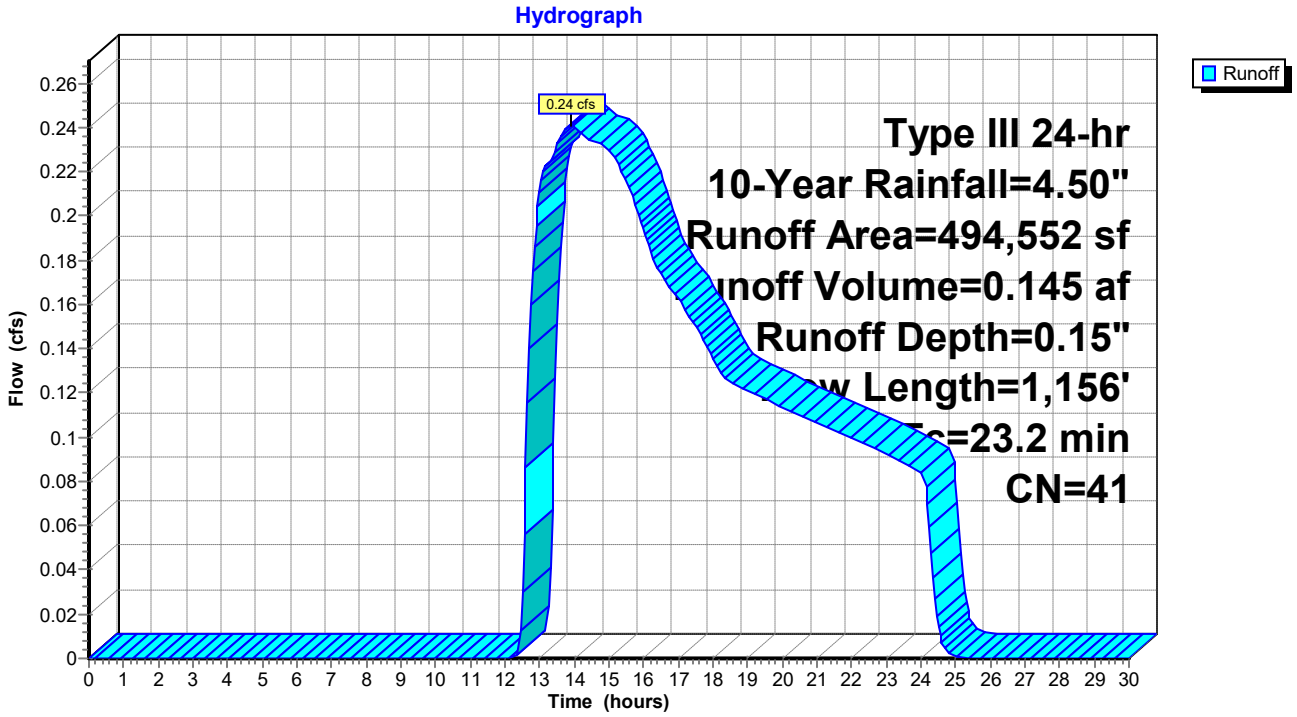
Runoff = 0.24 cfs @ 13.93 hrs, Volume= 0.145 af, Depth= 0.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.50"

Area (sf)	CN	Description
267,760	39	>75% Grass cover, Good, HSG A
146,825	30	Woods, Good, HSG A
8,905	98	Paved parking, HSG A
70,418	61	>75% Grass cover, Good, HSG B
644	98	Paved parking, HSG B
494,552	41	Weighted Average
485,003		98.07% Pervious Area
9,549		1.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	75	0.0480	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
4.2	245	0.0380	0.97		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.7	167	0.1080	1.64		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.6	113	0.0530	1.15		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.0	489	0.0290	2.74		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.2	50	0.0400	4.06		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	17	0.0590	3.91		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
23.2	1,156	Total			

Subcatchment P111: TO 1P



Summary for Subcatchment P112: TO DB11

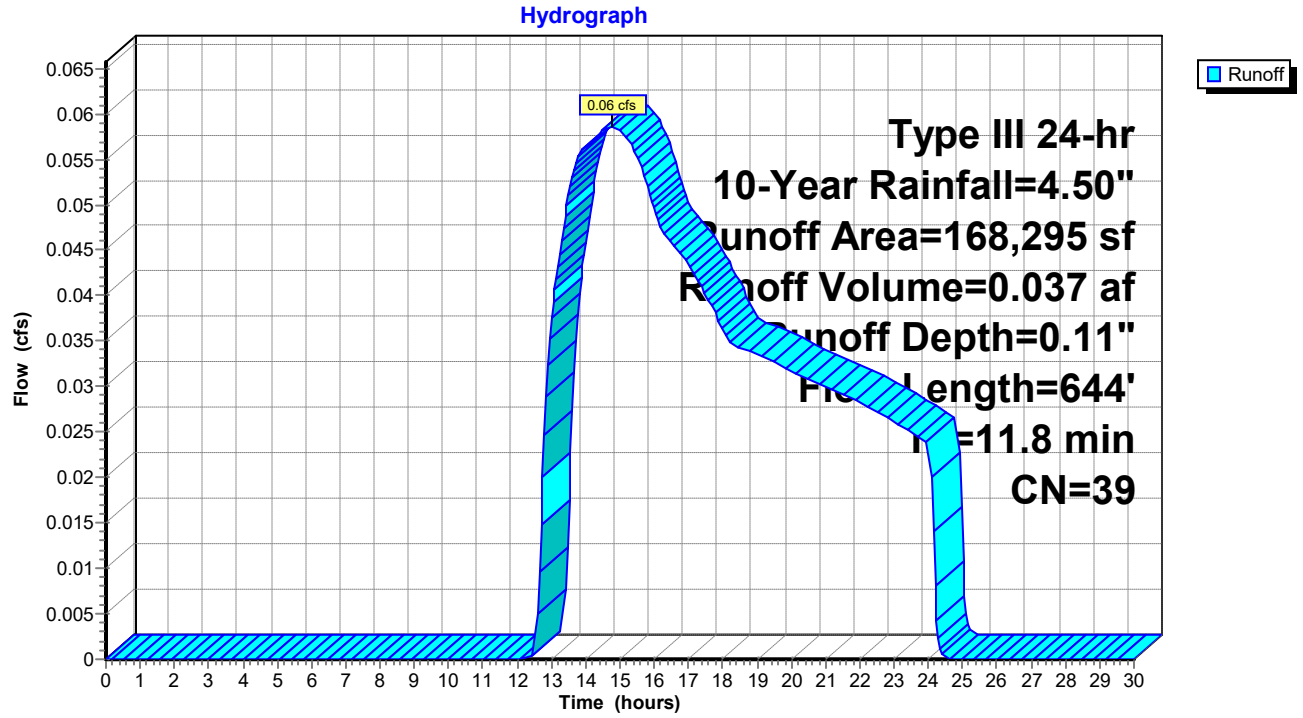
Runoff = 0.06 cfs @ 14.77 hrs, Volume= 0.037 af, Depth= 0.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.50"

Area (sf)	CN	Description
167,914	39	>75% Grass cover, Good, HSG A
281	98	Paved parking, HSG A
100	61	>75% Grass cover, Good, HSG B
168,295	39	Weighted Average
168,014		99.83% Pervious Area
281		0.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	75	0.0150	0.14		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.5	60	0.0150	1.97		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
2.3	491	0.0480	3.53		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.0	18	0.4440	10.73		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
11.8	644	Total			

Subcatchment P112: TO DB11



Summary for Subcatchment P113: TO DB11

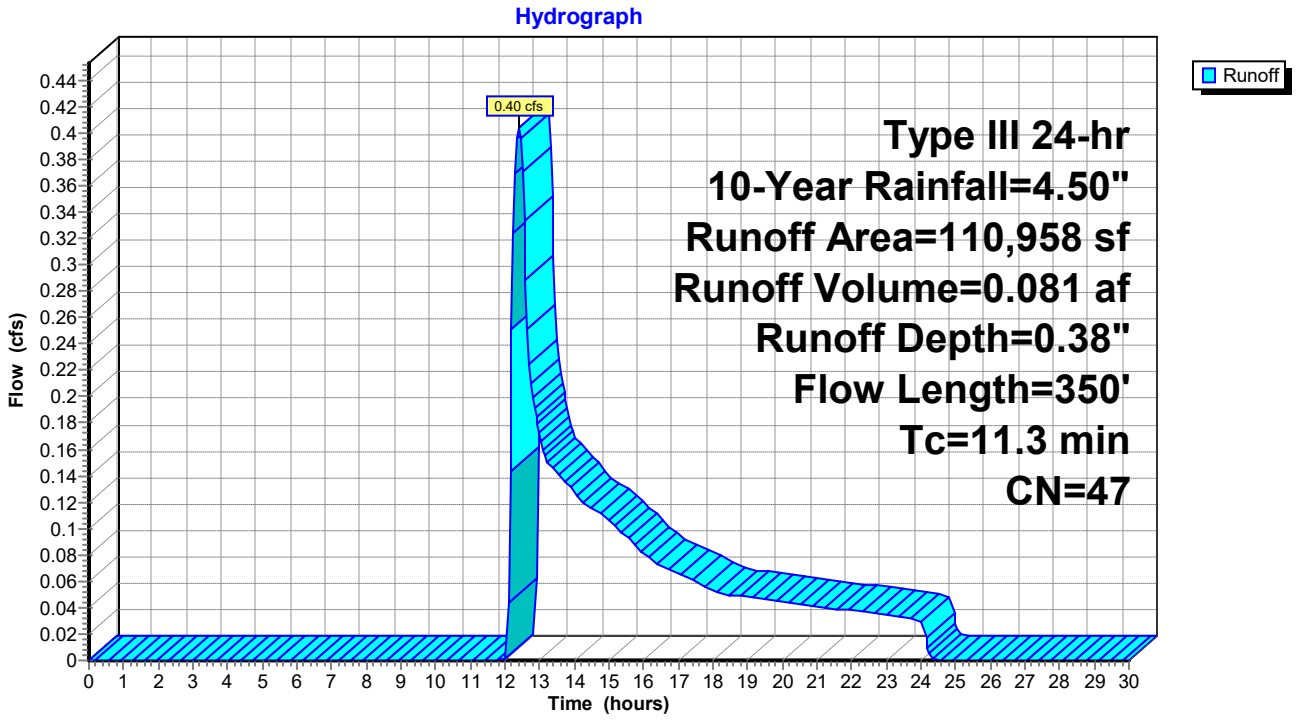
Runoff = 0.40 cfs @ 12.40 hrs, Volume= 0.081 af, Depth= 0.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.50"

Area (sf)	CN	Description
69,459	39	>75% Grass cover, Good, HSG A
41,499	61	>75% Grass cover, Good, HSG B
110,958	47	Weighted Average
110,958		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	75	0.0130	0.13		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.7	80	0.0130	1.84		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.0	195	0.0400	3.22		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
11.3	350	Total			

Subcatchment P113: TO DB11



Summary for Subcatchment P114: P114

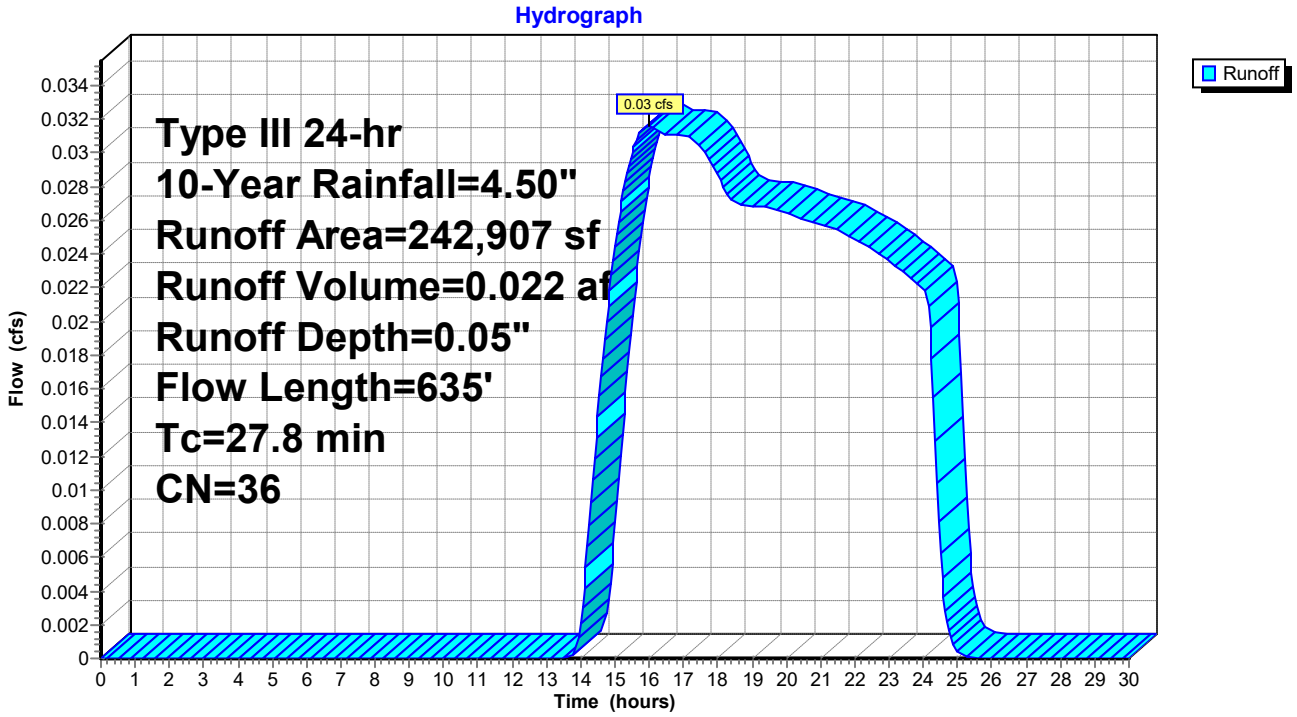
Runoff = 0.03 cfs @ 15.98 hrs, Volume= 0.022 af, Depth= 0.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.50"

Area (sf)	CN	Description
63,004	39	>75% Grass cover, Good, HSG A
157,080	30	Woods, Good, HSG A
1,859	61	>75% Grass cover, Good, HSG B
603	55	Woods, Good, HSG B
20,361	70	Woods, Good, HSG C
242,907	36	Weighted Average
242,907		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	75	0.0130	0.13		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.0	5	0.0130	1.84		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.1	30	0.0670	4.17		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.4	30	0.0670	1.29		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
4.5	244	0.0330	0.91		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
13.2	251	0.0040	0.32		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
27.8	635	Total			

Subcatchment P114: P114



Summary for Subcatchment P12: TO BASIN #2

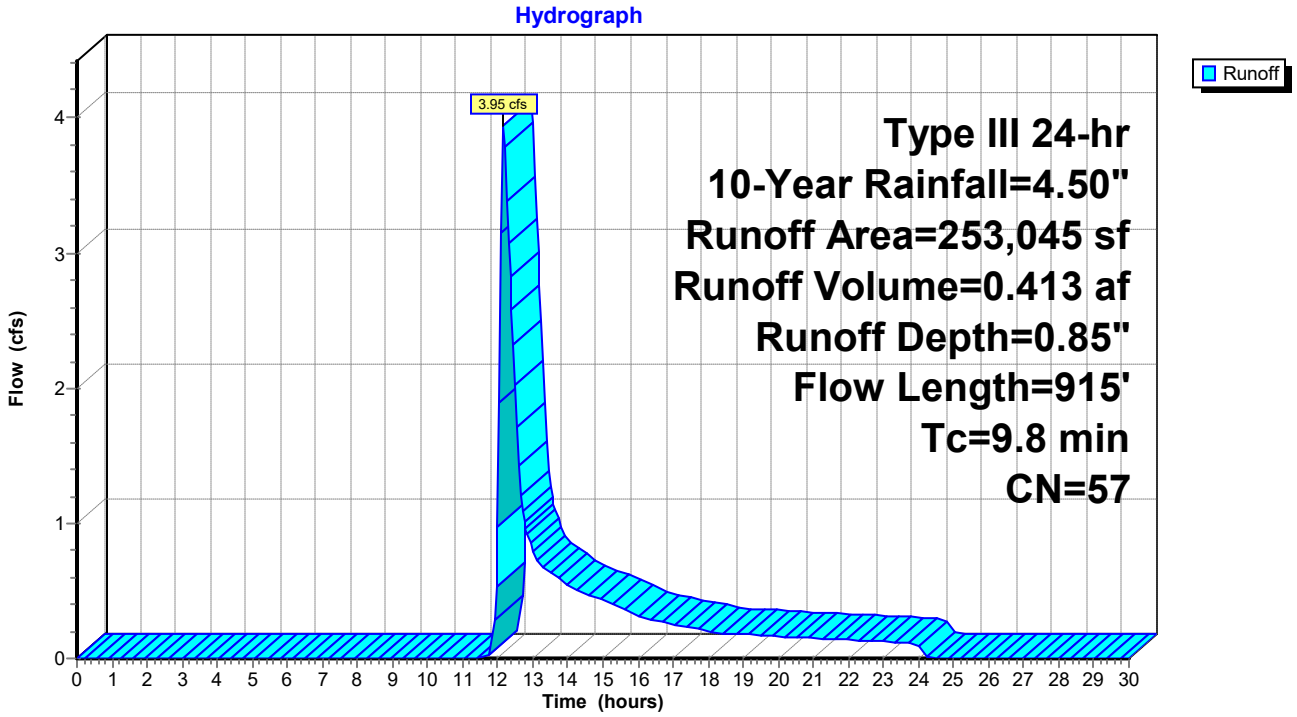
Runoff = 3.95 cfs @ 12.17 hrs, Volume= 0.413 af, Depth= 0.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.50"

Area (sf)	CN	Description
122,483	39	>75% Grass cover, Good, HSG A
1,193	76	Gravel roads, HSG A
129,369	74	>75% Grass cover, Good, HSG C
253,045	57	Weighted Average
253,045		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1	75	0.0690	0.18		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
0.0	12	0.0690	4.23		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.7	208	0.0860	4.72		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.0	18	0.3300	9.25		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.1	14	0.0100	1.61		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.4	77	0.0400	3.22		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.7	202	0.1000	5.09		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.8	309	0.1600	6.44		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
9.8	915	Total			

Subcatchment P12: TO BASIN #2



Summary for Subcatchment P121: TO DP12

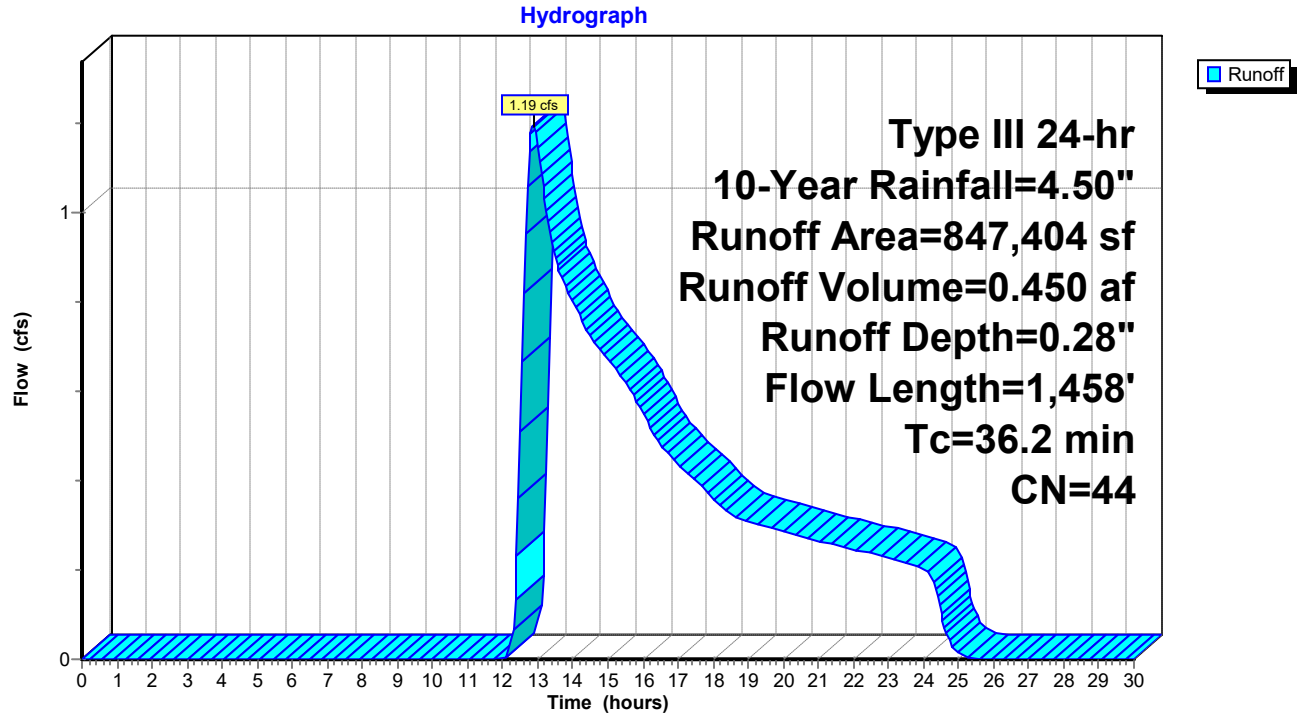
Runoff = 1.19 cfs @ 12.86 hrs, Volume= 0.450 af, Depth= 0.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.50"

Area (sf)	CN	Description
122,267	39	>75% Grass cover, Good, HSG A
308,952	30	Woods, Good, HSG A
129,820	61	>75% Grass cover, Good, HSG B
286,365	55	Woods, Good, HSG B
847,404	44	Weighted Average
847,404		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	75	0.0500	0.22		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
1.1	242	0.0500	3.60		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
8.7	601	0.0530	1.15		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
20.8	540	0.0075	0.43		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
36.2	1,458	Total			

Subcatchment P121: TO DP12



Summary for Subcatchment P122: TO DB12

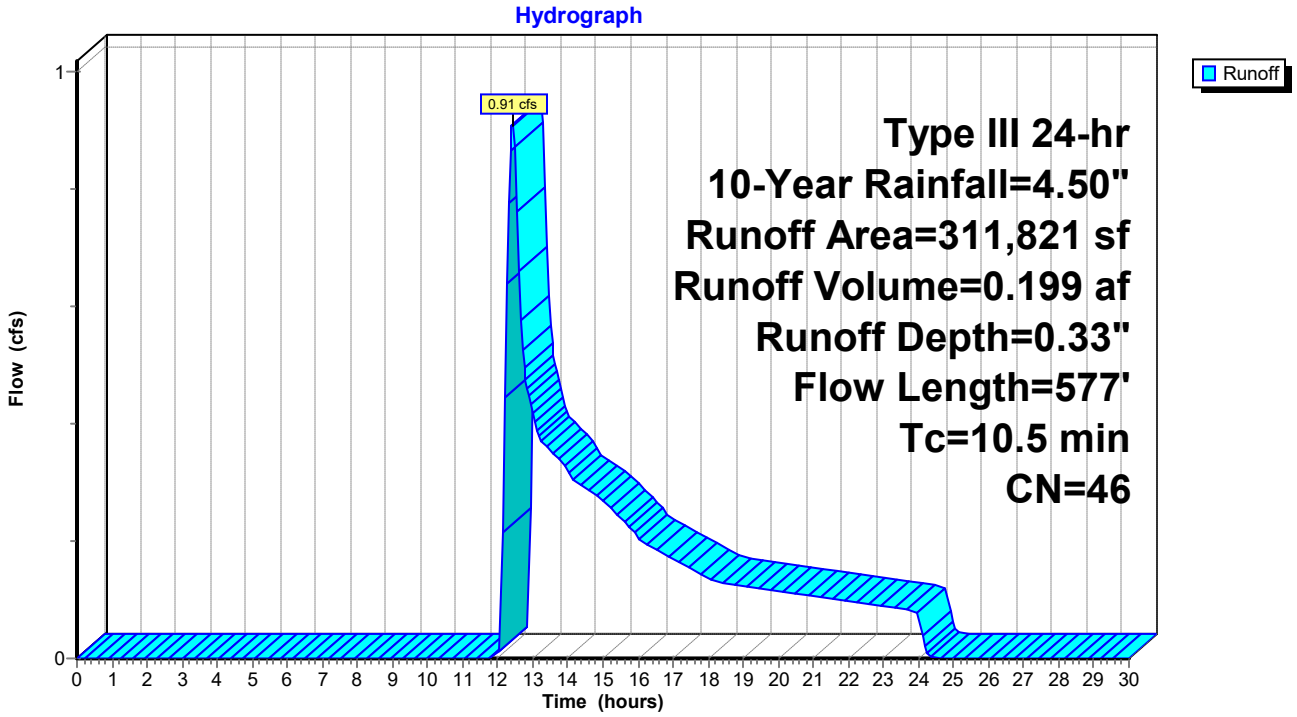
Runoff = 0.91 cfs @ 12.42 hrs, Volume= 0.199 af, Depth= 0.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.50"

Area (sf)	CN	Description
127,006	39	>75% Grass cover, Good, HSG A
60,526	30	Woods, Good, HSG A
124,289	61	>75% Grass cover, Good, HSG B
311,821	46	Weighted Average
311,821		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	75	0.0200	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.2	27	0.0200	2.28		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.4	90	0.0670	4.17		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.9	376	0.0400	3.22		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.0	9	0.3330	9.29		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
10.5	577	Total			

Subcatchment P122: TO DB12



Summary for Subcatchment P123: TO D.BASIN#13

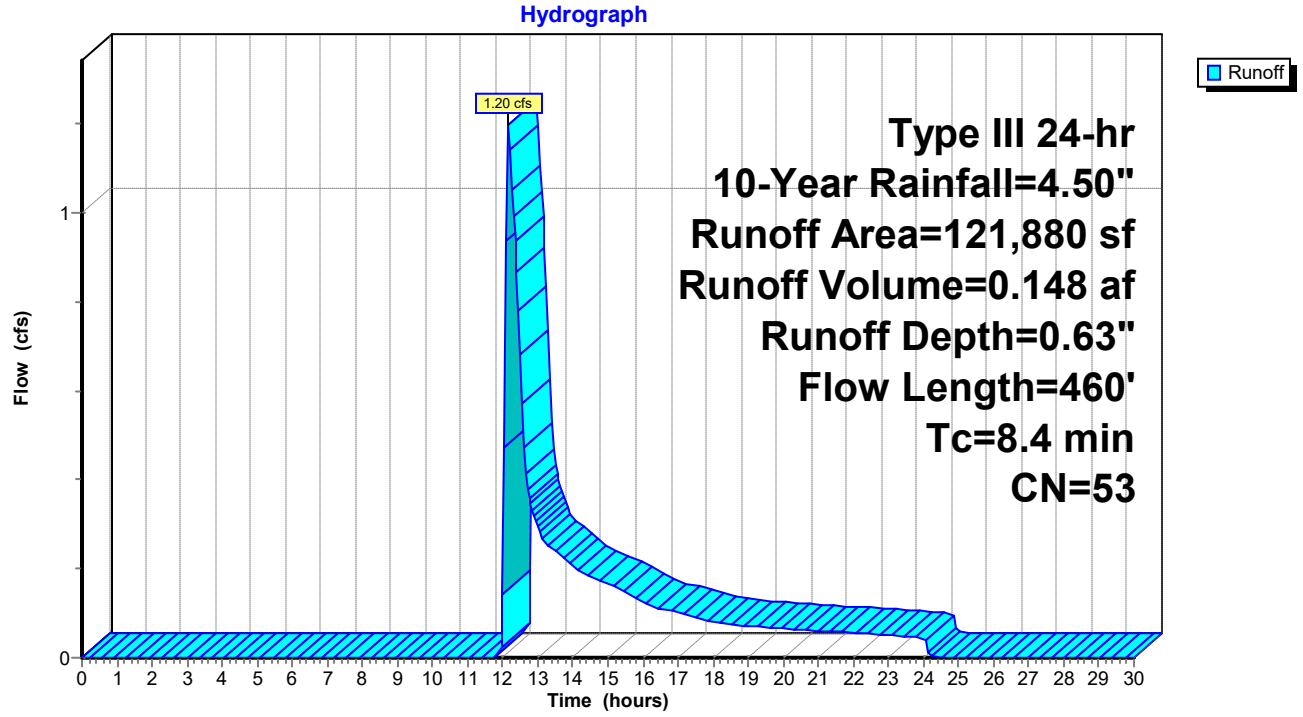
Runoff = 1.20 cfs @ 12.17 hrs, Volume= 0.148 af, Depth= 0.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.50"

Area (sf)	CN	Description
43,002	39	>75% Grass cover, Good, HSG A
70,744	61	>75% Grass cover, Good, HSG B
8,134	55	Woods, Good, HSG B
121,880	53	Weighted Average
121,880		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4	75	0.0360	0.20		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.0	8	0.0360	3.05		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.8	207	0.0670	4.17		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.2	170	0.0200	2.28		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
8.4	460	Total			

Subcatchment P123: TO D.BASIN#13



Summary for Subcatchment P13: TO BASIN#1

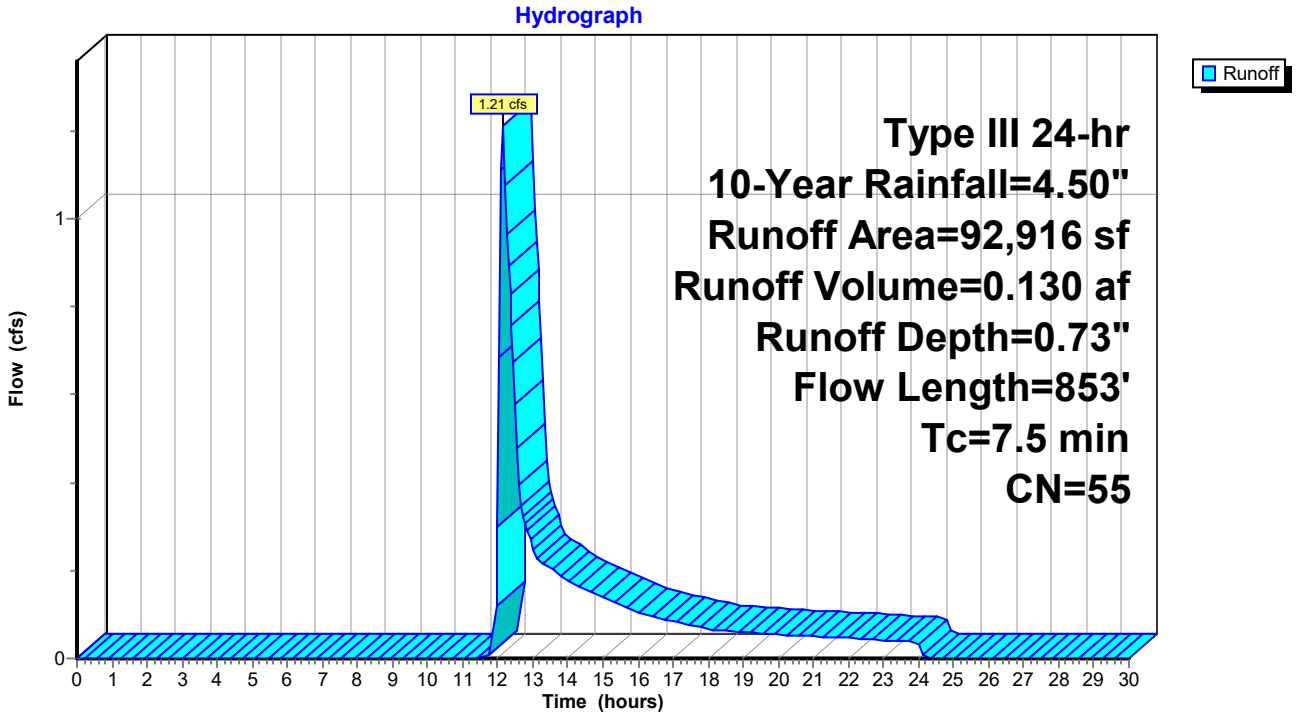
Runoff = 1.21 cfs @ 12.15 hrs, Volume= 0.130 af, Depth= 0.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.50"

Area (sf)	CN	Description
53,074	39	>75% Grass cover, Good, HSG A
13,231	76	Gravel roads, HSG A
23,298	74	>75% Grass cover, Good, HSG C
3,313	89	Gravel roads, HSG C
92,916	55	Weighted Average
92,916		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.9	75	0.0690	0.26		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.1	25	0.0690	4.23		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.7	200	0.1000	5.09		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.0	15	0.3300	9.25		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.2	37	0.0500	3.60		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.6	501	0.1000	5.09		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
7.5	853	Total			

Subcatchment P13: TO BASIN#1



Summary for Subcatchment P131: TO DP131

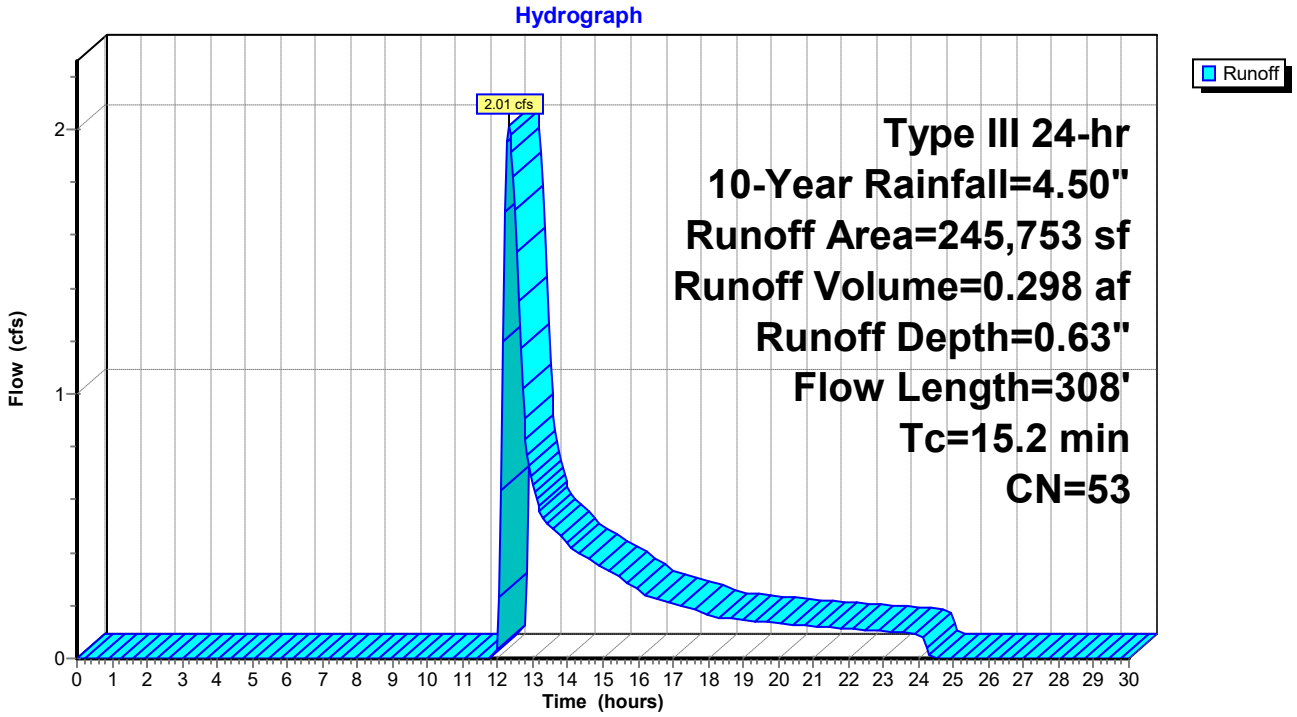
Runoff = 2.01 cfs @ 12.31 hrs, Volume= 0.298 af, Depth= 0.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.50"

Area (sf)	CN	Description
565	39	>75% Grass cover, Good, HSG A
3,137	30	Woods, Good, HSG A
5,000	61	>75% Grass cover, Good, HSG B
188,185	55	Woods, Good, HSG B
7,306	30	Brush, Good, HSG A
41,560	48	Brush, Good, HSG B
245,753	53	Weighted Average
245,753		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	10	0.0450	0.14		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
11.4	65	0.0450	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
0.3	17	0.0450	1.06		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.2	101	0.0800	1.41		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.1	115	0.1200	1.73		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.2	308	Total			

Subcatchment P131: TO DP131



Summary for Subcatchment P141: TO DP14

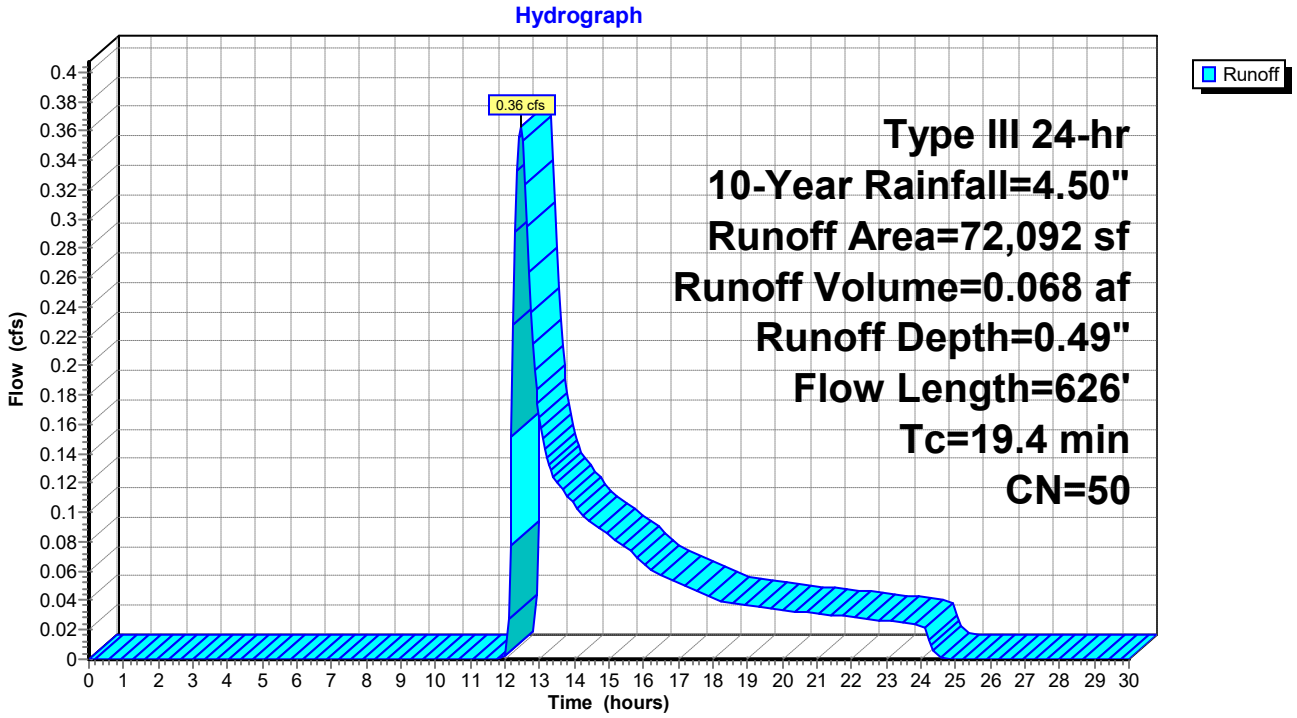
Runoff = 0.36 cfs @ 12.46 hrs, Volume= 0.068 af, Depth= 0.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.50"

Area (sf)	CN	Description
7,404	61	>75% Grass cover, Good, HSG B
46,382	55	Woods, Good, HSG B
4,366	39	>75% Grass cover, Good, HSG A
13,940	30	Woods, Good, HSG A
72,092	50	Weighted Average
72,092		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	75	0.0950	0.13		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
4.0	366	0.0950	1.54		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.5	69	0.1770	2.10		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
5.5	116	0.0050	0.35		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
19.4	626	Total			

Subcatchment P141: TO DP14



Summary for Subcatchment P142: TO D-BASIN#14

[49] Hint: Tc<2dt may require smaller dt

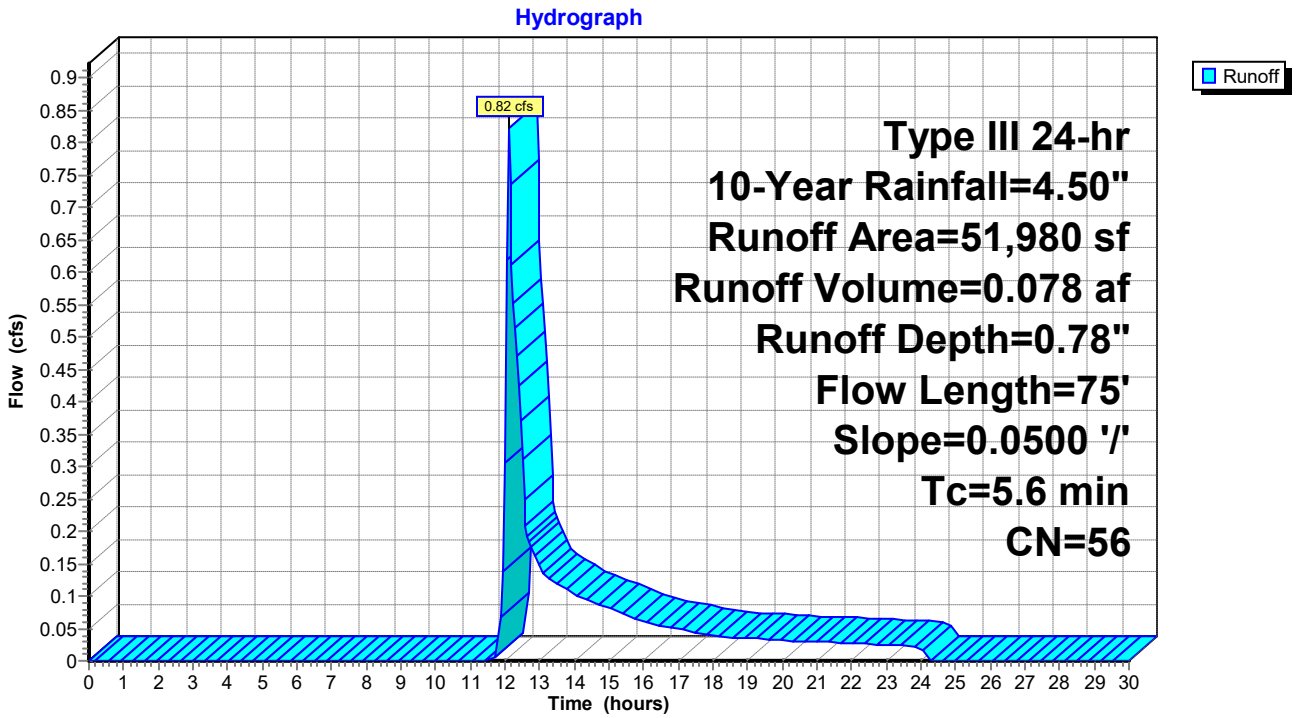
Runoff = 0.82 cfs @ 12.11 hrs, Volume= 0.078 af, Depth= 0.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.50"

Area (sf)	CN	Description
12,322	39	>75% Grass cover, Good, HSG A
39,658	61	>75% Grass cover, Good, HSG B
51,980	56	Weighted Average
51,980		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	75	0.0500	0.22		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"

Subcatchment P142: TO D-BASIN#14



Summary for Subcatchment P151: TO DP15

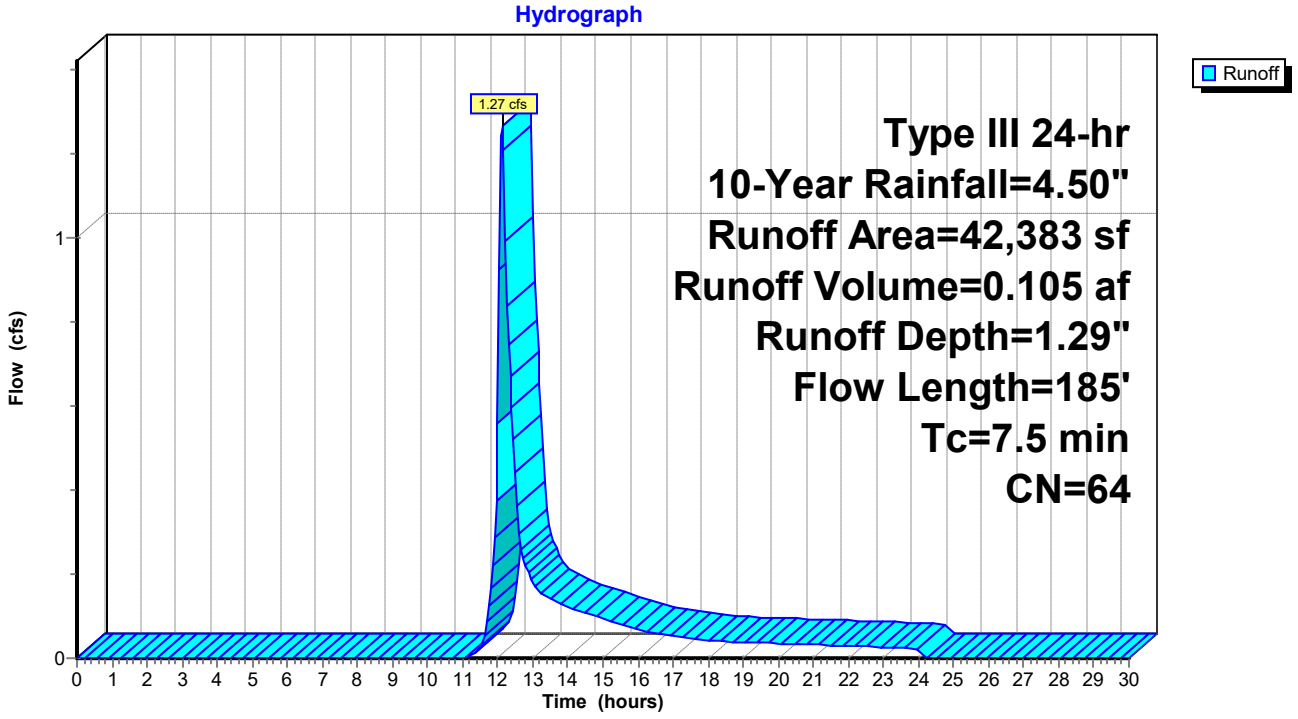
Runoff = 1.27 cfs @ 12.12 hrs, Volume= 0.105 af, Depth= 1.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.50"

Area (sf)	CN	Description
35,472	61	>75% Grass cover, Good, HSG B
2,601	55	Woods, Good, HSG B
4,310	98	Paved parking, HSG B
42,383	64	Weighted Average
38,073		89.83% Pervious Area
4,310		10.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.7	75	0.0320	0.19		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.3	50	0.0320	2.88		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.5	60	0.1670	2.04		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
7.5	185	Total			

Subcatchment P151: TO DP15



Summary for Subcatchment P161: TO DP16

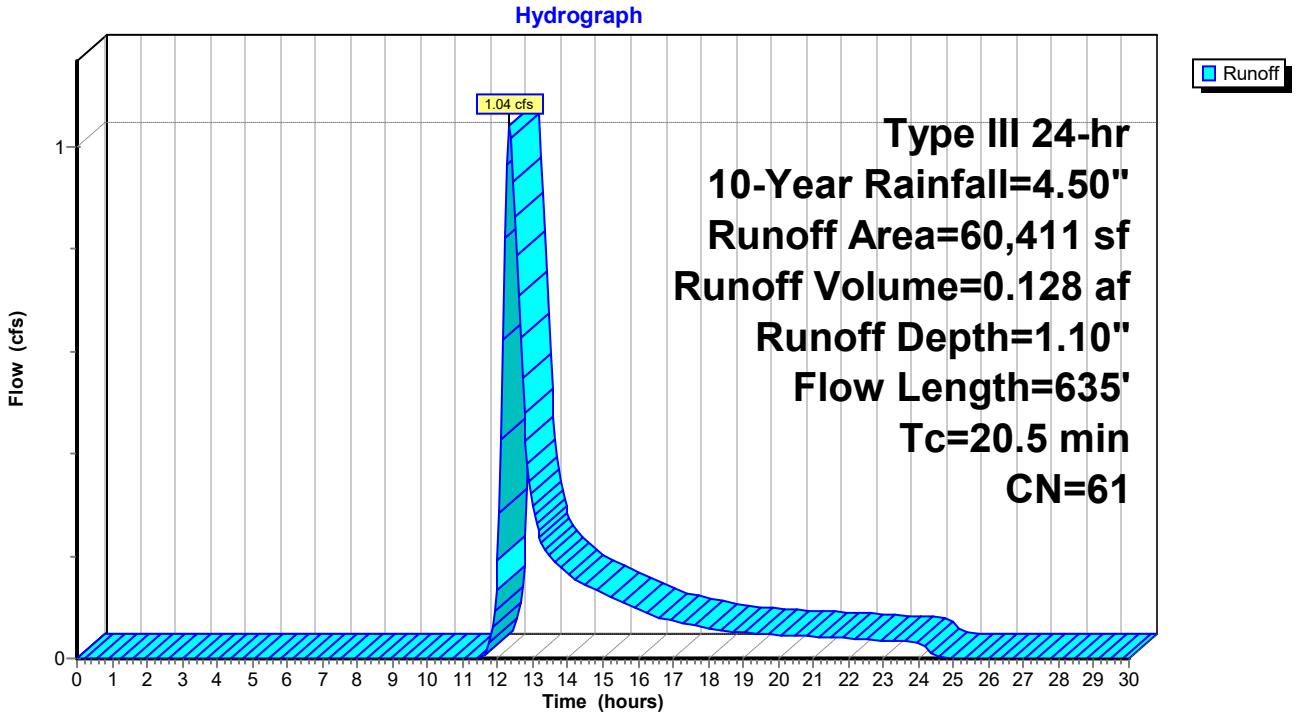
Runoff = 1.04 cfs @ 12.33 hrs, Volume= 0.128 af, Depth= 1.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.50"

Area (sf)	CN	Description
17,678	61	>75% Grass cover, Good, HSG B
36,188	55	Woods, Good, HSG B
6,545	98	Paved parking, HSG B
60,411	61	Weighted Average
53,866		89.17% Pervious Area
6,545		10.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.5	75	0.0470	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
5.9	326	0.0340	0.92		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.0	5	0.0430	4.21		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.0	179	0.0890	1.49		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.1	50	0.1800	8.61		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
20.5	635	Total			

Subcatchment P161: TO DP16



Summary for Subcatchment P21: TO DP#2

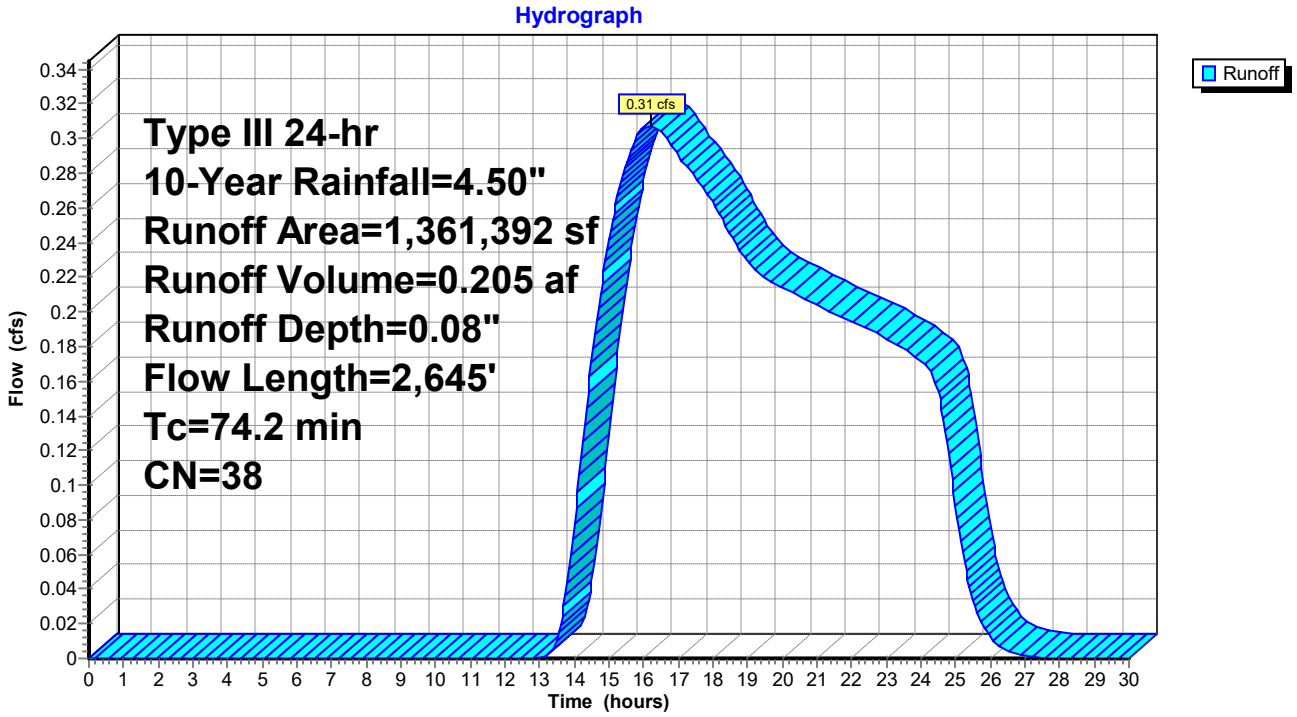
Runoff = 0.31 cfs @ 16.23 hrs, Volume= 0.205 af, Depth= 0.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.50"

Area (sf)	CN	Description
355,191	39	>75% Grass cover, Good, HSG A
803,291	30	Woods, Good, HSG A
19,791	76	Gravel roads, HSG A
9,527	98	Paved parking, HSG A
109,550	61	>75% Grass cover, Good, HSG B
40,873	70	Woods, Good, HSG C
23,169	55	Woods, Good, HSG B
1,361,392	38	Weighted Average
1,351,865		99.30% Pervious Area
9,527		0.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	75	0.1000	0.30		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.9	274	0.1000	5.09		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
6.7	400	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
14.5	475	0.0120	0.55		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
31.0	778	0.0070	0.42		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
16.9	643	0.0160	0.63		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
74.2	2,645	Total			

Subcatchment P21: TO DP#2



Summary for Subcatchment P21A: TO SB1

[49] Hint: Tc<2dt may require smaller dt

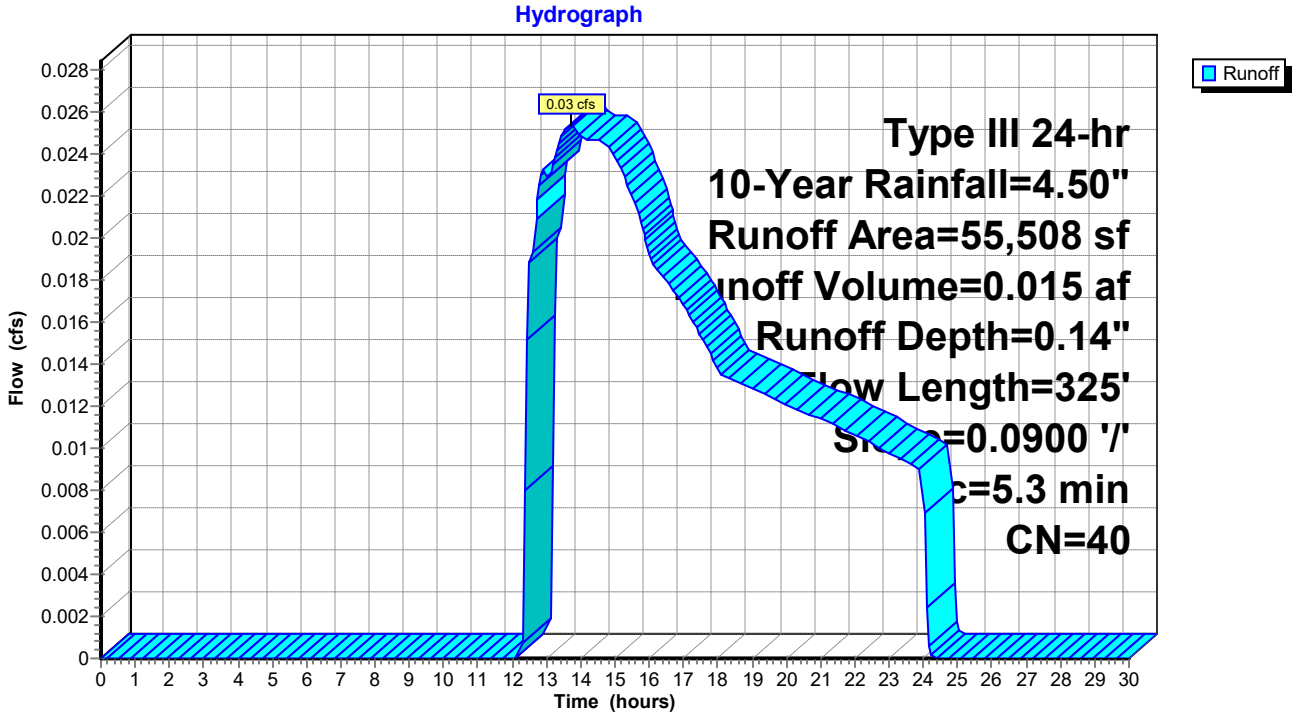
Runoff = 0.03 cfs @ 13.71 hrs, Volume= 0.015 af, Depth= 0.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.50"

Area (sf)	CN	Description
53,568	39	>75% Grass cover, Good, HSG A
1,940	76	Gravel roads, HSG A
55,508	40	Weighted Average
55,508		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	75	0.0900	0.28		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.9	250	0.0900	4.83		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
5.3	325	Total			

Subcatchment P21A: TO SB1



Summary for Subcatchment P21B: TO DCB-F

[49] Hint: Tc<2dt may require smaller dt

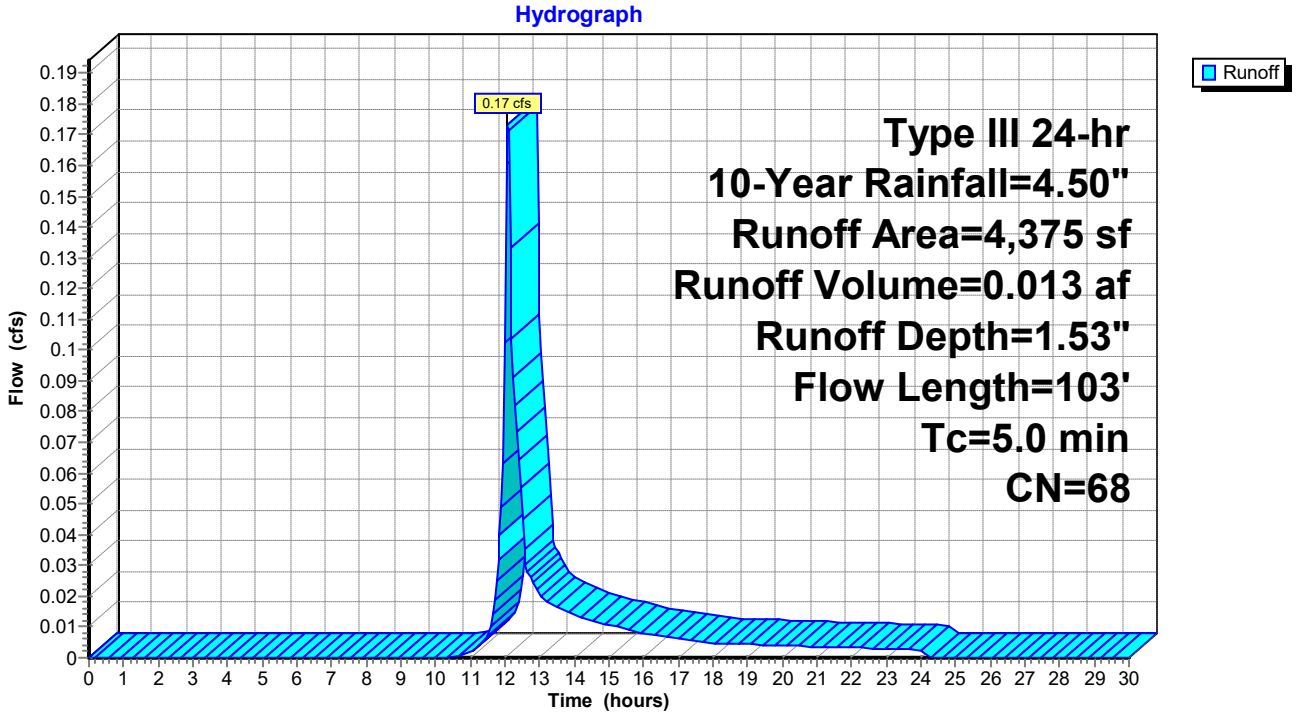
Runoff = 0.17 cfs @ 12.09 hrs, Volume= 0.013 af, Depth= 1.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.50"

Area (sf)	CN	Description
2,227	39	>75% Grass cover, Good, HSG A
2,148	98	Paved parking, HSG A
4,375	68	Weighted Average
2,227		50.90% Pervious Area
2,148		49.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	50	0.0100	0.88		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
0.2	19	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	34	0.0600	3.94		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.2	103	Total, Increased to minimum Tc = 5.0 min			

Subcatchment P21B: TO DCB-F



Summary for Subcatchment P22: TO BASIN#3

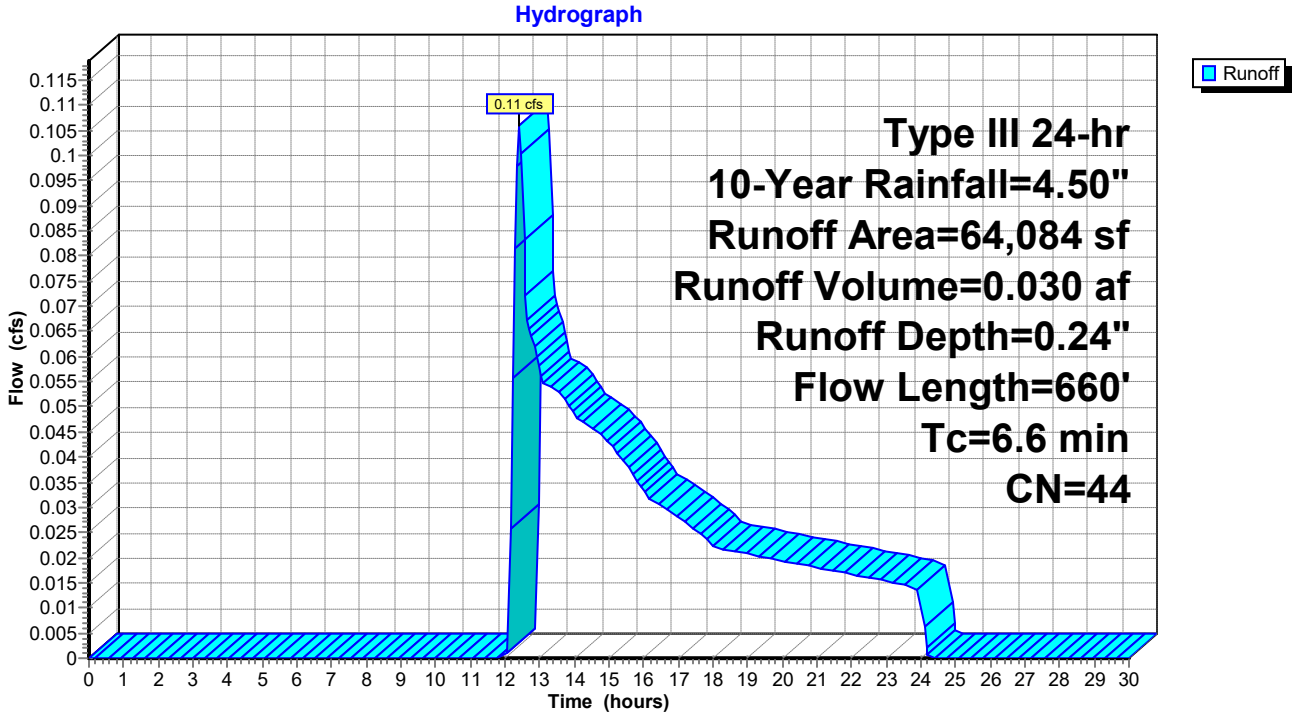
Runoff = 0.11 cfs @ 12.42 hrs, Volume= 0.030 af, Depth= 0.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.50"

Area (sf)	CN	Description
56,223	39	>75% Grass cover, Good, HSG A
7,861	76	Gravel roads, HSG A
64,084	44	Weighted Average
64,084		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	75	0.0800	0.27		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.4	110	0.0800	4.55		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.1	14	0.0200	2.28		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.5	461	0.1000	5.09		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
6.6	660	Total			

Subcatchment P22: TO BASIN#3



Summary for Subcatchment P23: TO BASIN #4

[49] Hint: Tc<2dt may require smaller dt

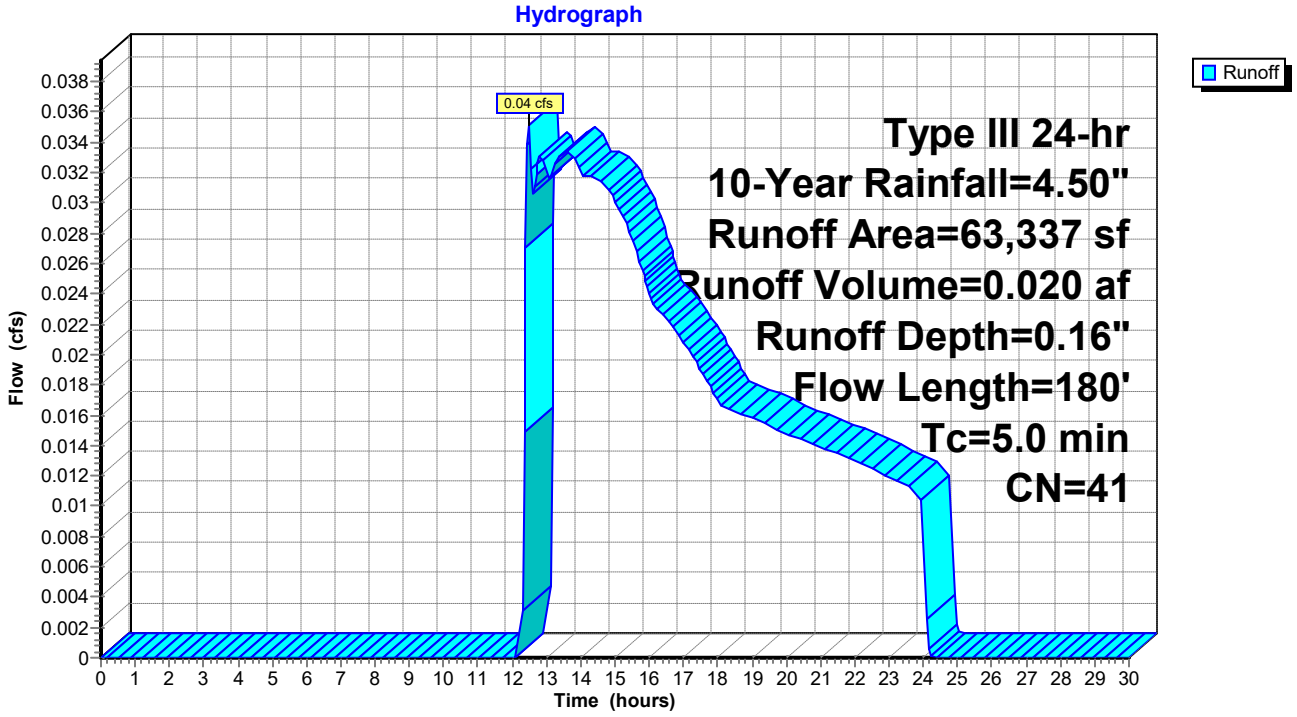
Runoff = 0.04 cfs @ 12.49 hrs, Volume= 0.020 af, Depth= 0.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.50"

Area (sf)	CN	Description
61,261	39	>75% Grass cover, Good, HSG A
2,076	98	Paved parking, HSG A
63,337	41	Weighted Average
61,261		96.72% Pervious Area
2,076		3.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	50	0.0200	1.16		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
0.0	26	0.3300	9.25		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.3	104	0.1000	5.09		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.0	180	Total, Increased to minimum Tc = 5.0 min			

Subcatchment P23: TO BASIN #4



Summary for Subcatchment P24: TO BASIN#5

[49] Hint: Tc<2dt may require smaller dt

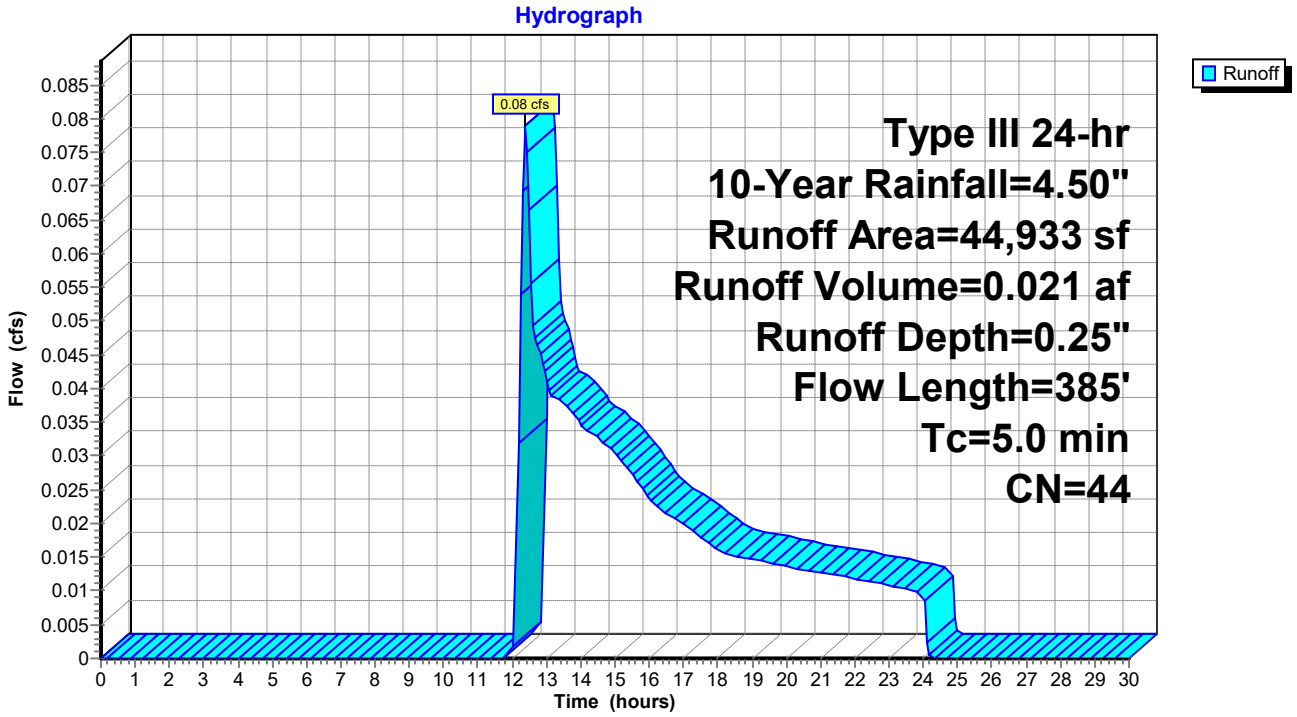
Runoff = 0.08 cfs @ 12.39 hrs, Volume= 0.021 af, Depth= 0.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.50"

Area (sf)	CN	Description
39,326	39	>75% Grass cover, Good, HSG A
2,324	76	Gravel roads, HSG A
1,422	98	Paved parking, HSG A
1,861	61	>75% Grass cover, Good, HSG B
44,933	44	Weighted Average
43,511		96.84% Pervious Area
1,422		3.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	50	0.0200	1.16		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
0.7	210	0.1000	5.09		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.1	14	0.0200	2.28		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.4	111	0.1000	5.09		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.9	385	Total, Increased to minimum Tc = 5.0 min			

Subcatchment P24: TO BASIN#5



Summary for Subcatchment P25: TO DCB-D

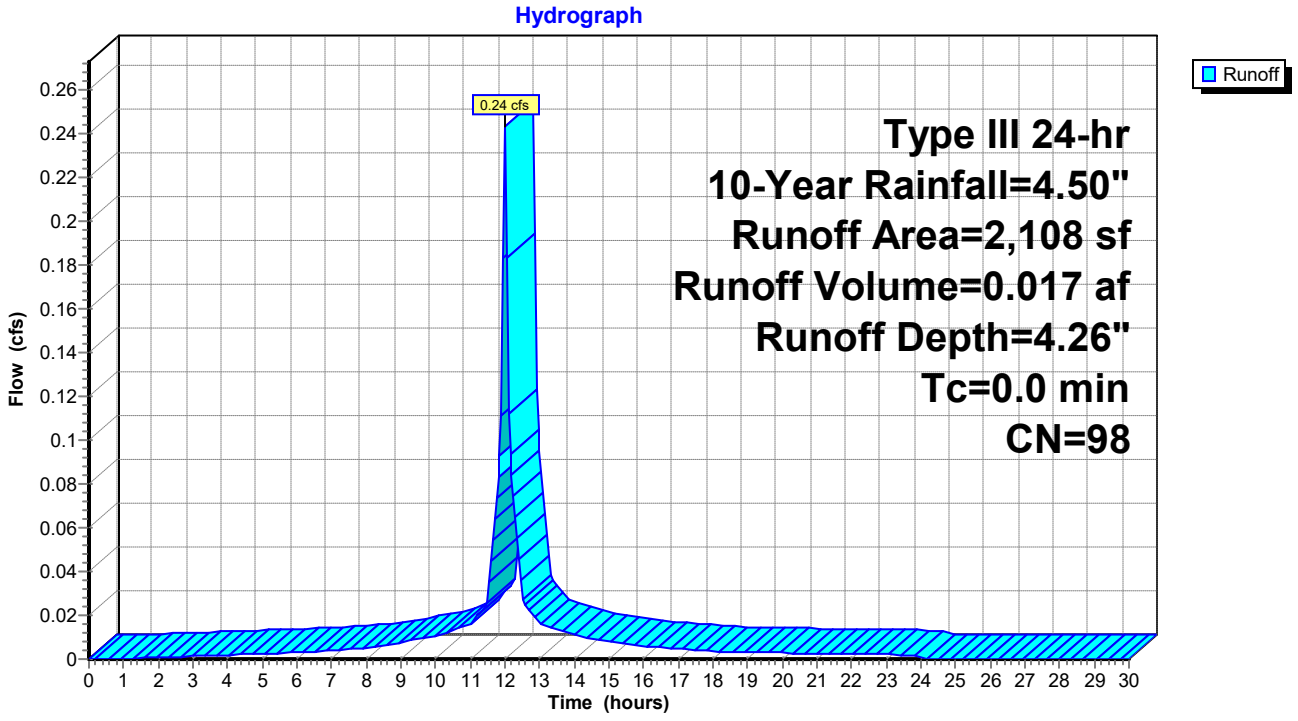
[46] Hint: Tc=0 (Instant runoff peak depends on dt)

Runoff = 0.24 cfs @ 12.00 hrs, Volume= 0.017 af, Depth= 4.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.50"

Area (sf)	CN	Description
2,108	98	Paved parking, HSG A
2,108		100.00% Impervious Area

Subcatchment P25: TO DCB-D



Summary for Subcatchment P26: TO DCB-A

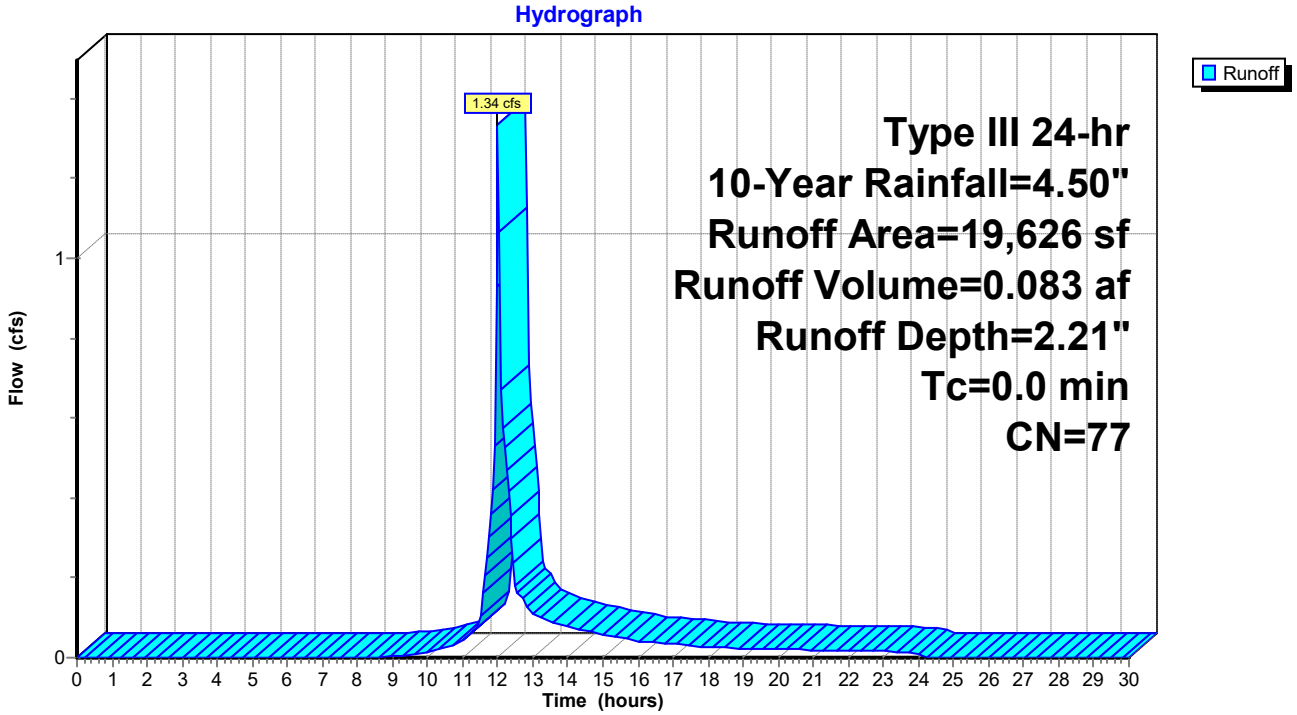
[46] Hint: Tc=0 (Instant runoff peak depends on dt)

Runoff = 1.34 cfs @ 12.01 hrs, Volume= 0.083 af, Depth= 2.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.50"

Area (sf)	CN	Description
8,453	98	Paved parking, HSG A
11,173	61	>75% Grass cover, Good, HSG B
19,626	77	Weighted Average
11,173		56.93% Pervious Area
8,453		43.07% Impervious Area

Subcatchment P26: TO DCB-A



Summary for Subcatchment P27: TO DCB-B

[49] Hint: Tc<2dt may require smaller dt

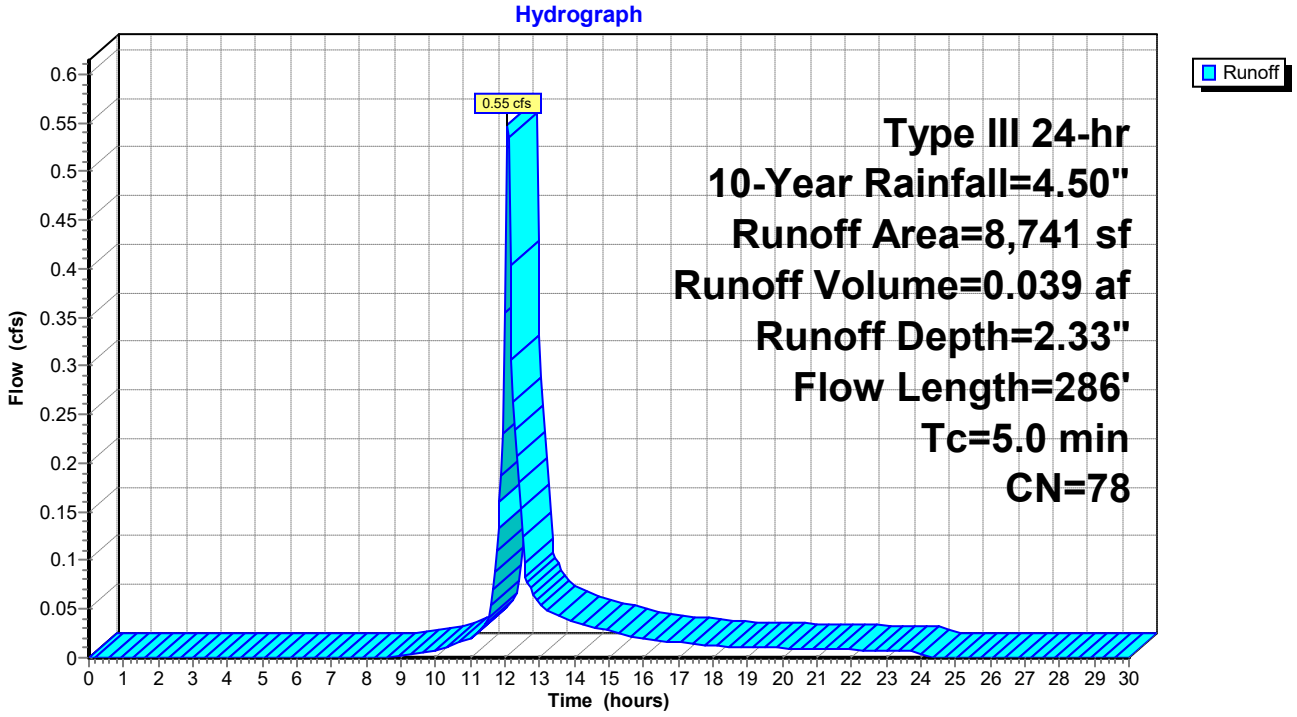
Runoff = 0.55 cfs @ 12.08 hrs, Volume= 0.039 af, Depth= 2.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.50"

Area (sf)	CN	Description
4,119	98	Paved parking, HSG A
4,622	61	>75% Grass cover, Good, HSG B
8,741	78	Weighted Average
4,622		52.88% Pervious Area
4,119		47.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	31	0.0200	1.05		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
0.4	19	0.0100	0.72		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
1.9	236	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.8	286	Total, Increased to minimum Tc = 5.0 min			

Subcatchment P27: TO DCB-B



Summary for Subcatchment P28: TO DCB-C

[49] Hint: Tc<2dt may require smaller dt

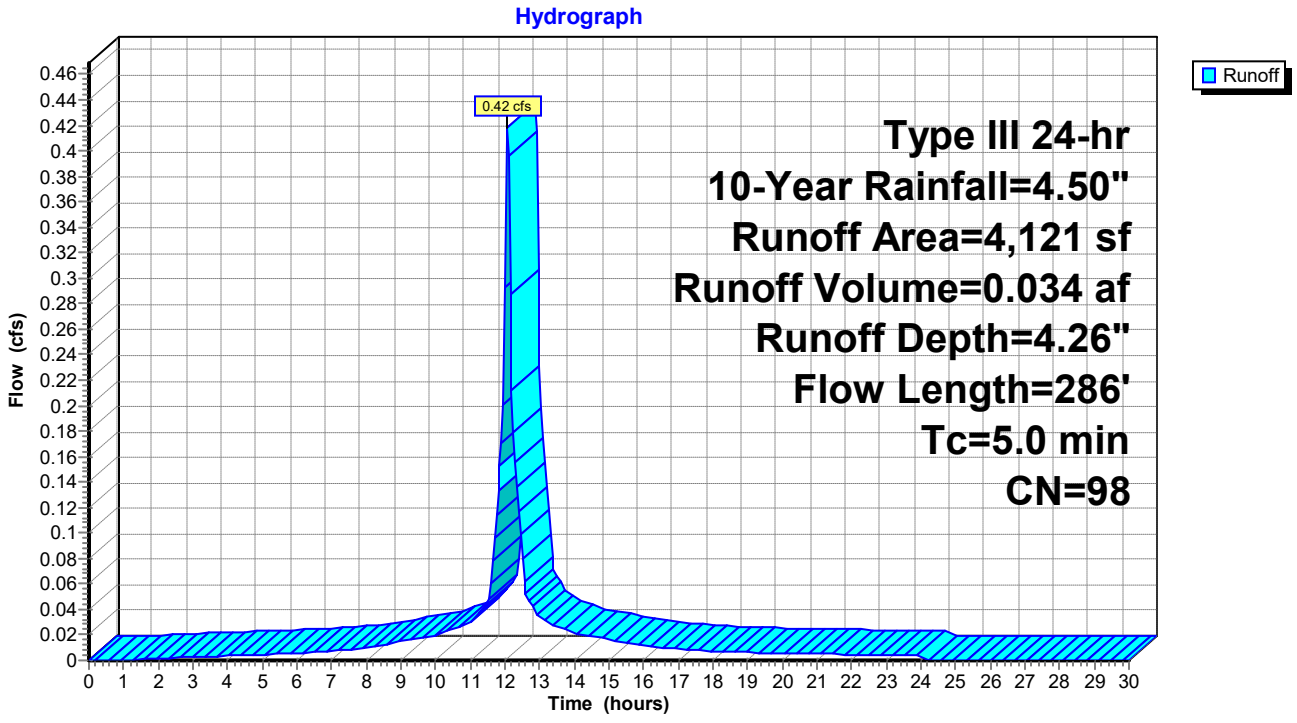
Runoff = 0.42 cfs @ 12.07 hrs, Volume= 0.034 af, Depth= 4.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.50"

Area (sf)	CN	Description
4,121	98	Paved parking, HSG A
4,121		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	31	0.0200	1.05		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
0.4	19	0.0100	0.72		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
1.9	236	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.8	286	Total, Increased to minimum Tc = 5.0 min			

Subcatchment P28: TO DCB-C



Summary for Subcatchment P29: TO DCB-D

[49] Hint: Tc<2dt may require smaller dt

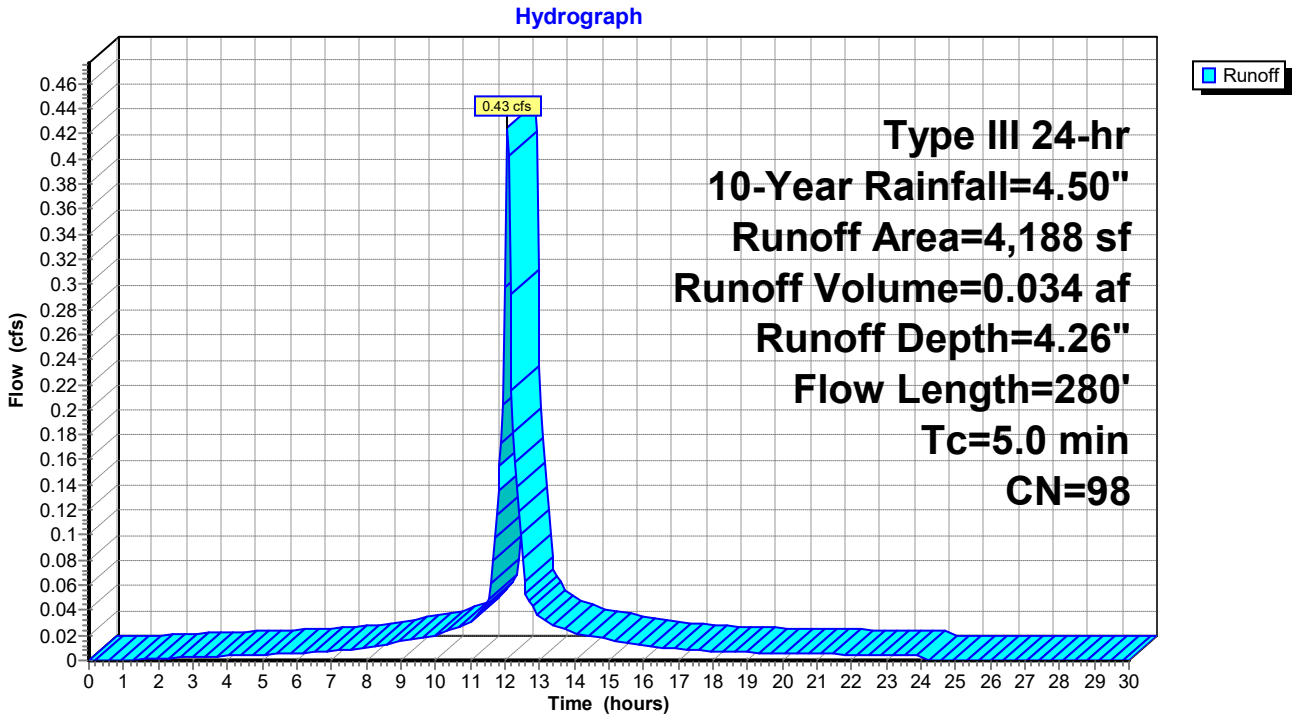
Runoff = 0.43 cfs @ 12.07 hrs, Volume= 0.034 af, Depth= 4.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.50"

Area (sf)	CN	Description
4,188	98	Paved parking, HSG A
4,188		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	21	0.0200	0.97		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
0.6	29	0.0100	0.79		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
1.9	230	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.9	280	Total, Increased to minimum Tc = 5.0 min			

Subcatchment P29: TO DCB-D



Summary for Subcatchment PS1: TO DCB#1

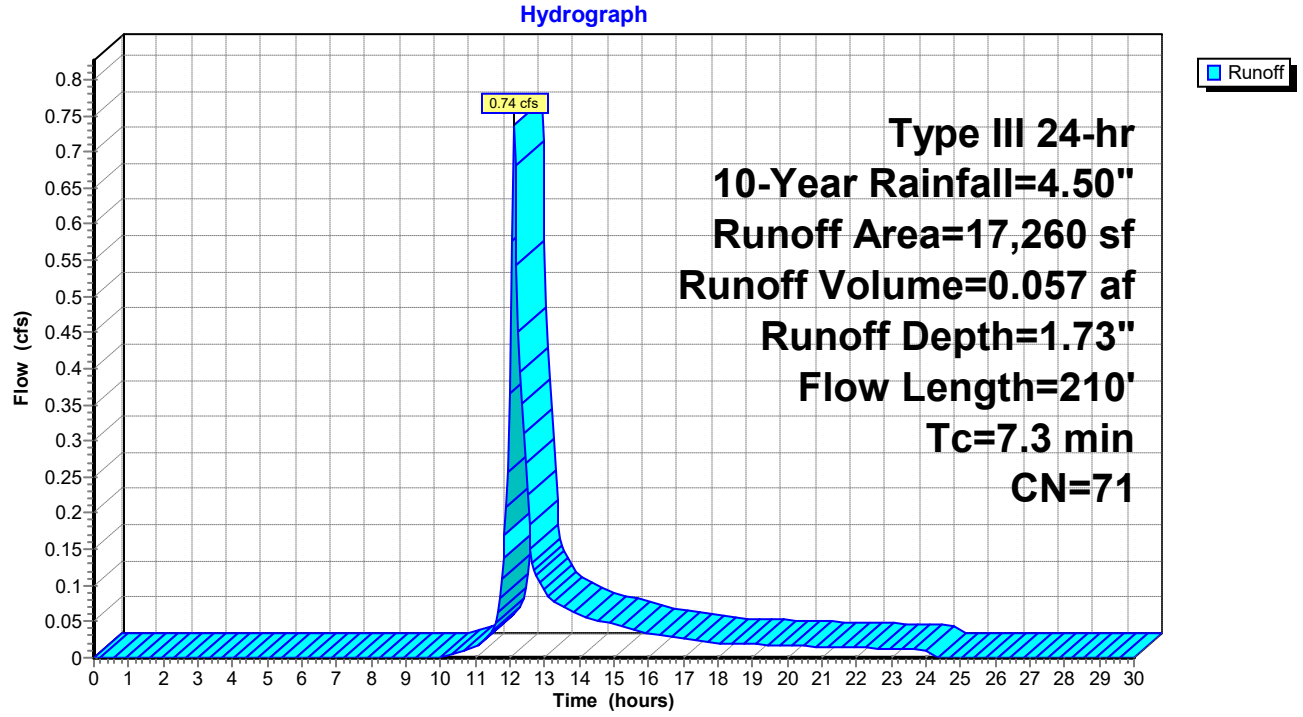
Runoff = 0.74 cfs @ 12.11 hrs, Volume= 0.057 af, Depth= 1.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.50"

Area (sf)	CN	Description
12,716	61	>75% Grass cover, Good, HSG B
4,544	98	Paved parking, HSG B
17,260	71	Weighted Average
12,716		73.67% Pervious Area
4,544		26.33% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	48	0.0200	0.14		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
1.2	27	0.3300	0.39		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.0	18	0.3300	9.25		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.5	117	0.0380	3.96		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
7.3	210	Total			

Subcatchment PS1: TO DCB#1



Summary for Subcatchment PS2: TO DCB#2

[49] Hint: Tc<2dt may require smaller dt

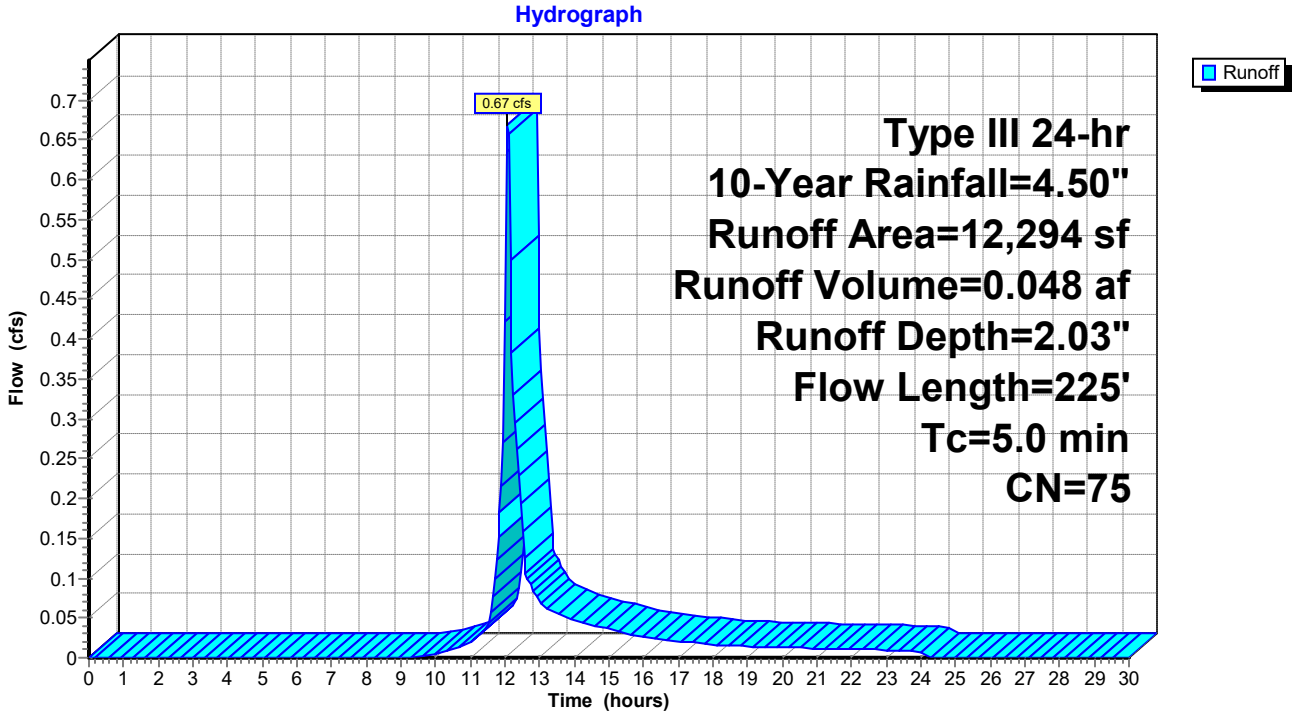
Runoff = 0.67 cfs @ 12.08 hrs, Volume= 0.048 af, Depth= 2.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.50"

Area (sf)	CN	Description
7,714	61	>75% Grass cover, Good, HSG B
4,580	98	Paved parking, HSG B
12,294	75	Weighted Average
7,714		62.75% Pervious Area
4,580		37.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.2	60	0.3300	0.46		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.5	85	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.3	80	0.0380	3.96		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
3.0	225	Total, Increased to minimum Tc = 5.0 min			

Subcatchment PS2: TO DCB#2



Summary for Reach 1R: (new Reach)

[62] Hint: Exceeded Reach OL1 OUTLET depth by 0.01' @ 29.95 hrs

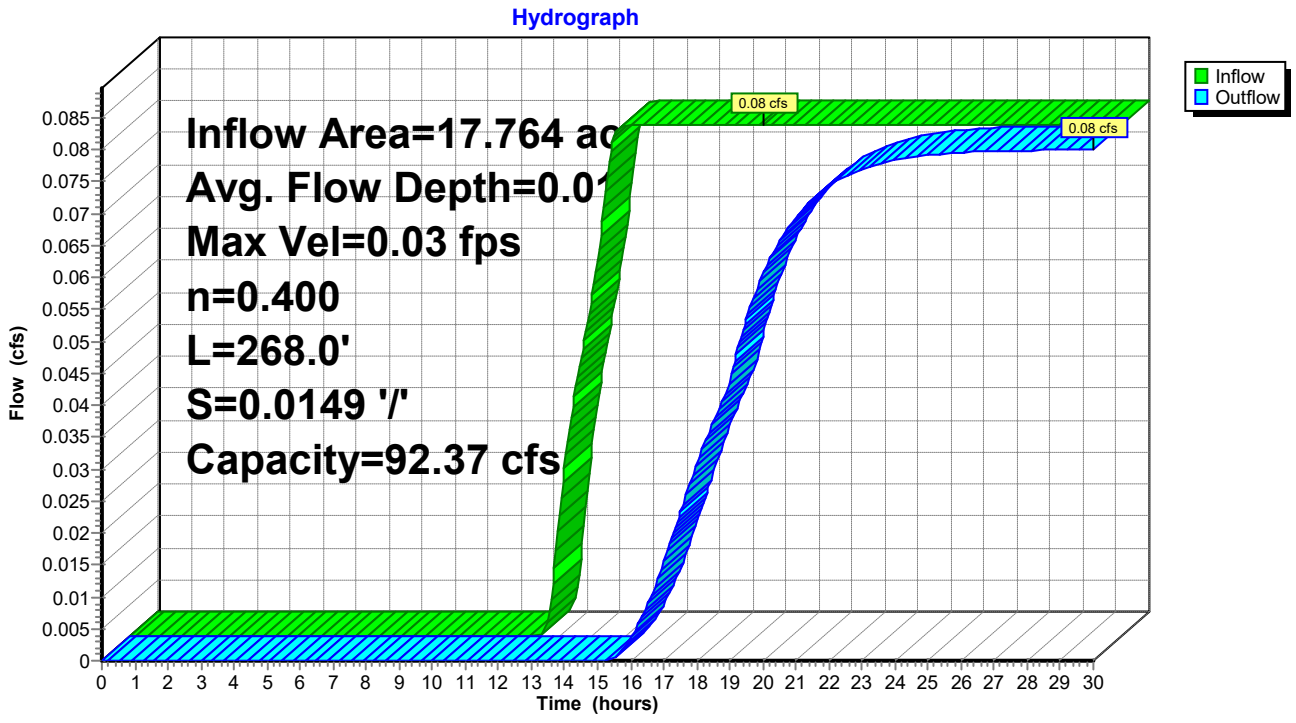
Inflow Area = 17.764 ac, 1.27% Impervious, Inflow Depth > 0.07" for 10-Year event
Inflow = 0.08 cfs @ 19.20 hrs, Volume= 0.109 af
Outflow = 0.08 cfs @ 30.00 hrs, Volume= 0.074 af, Atten= 0%, Lag= 648.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.03 fps, Min. Travel Time= 157.9 min
Avg. Velocity = 0.03 fps, Avg. Travel Time= 170.7 min

Peak Storage= 758 cf @ 30.00 hrs
Average Depth at Peak Storage= 0.01'
Bank-Full Depth= 1.00' Flow Area= 210.0 sf, Capacity= 92.37 cfs

200.00' x 1.00' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 220.00'
Length= 268.0' Slope= 0.0149 '/'
Inlet Invert= 872.00', Outlet Invert= 868.00'

Reach 1R: (new Reach)



Summary for Reach 2R: WOODS

[61] Hint: Exceeded Reach 15R outlet invert by 0.01' @ 30.00 hrs
[62] Hint: Exceeded Reach 16R OUTLET depth by 0.01' @ 29.95 hrs

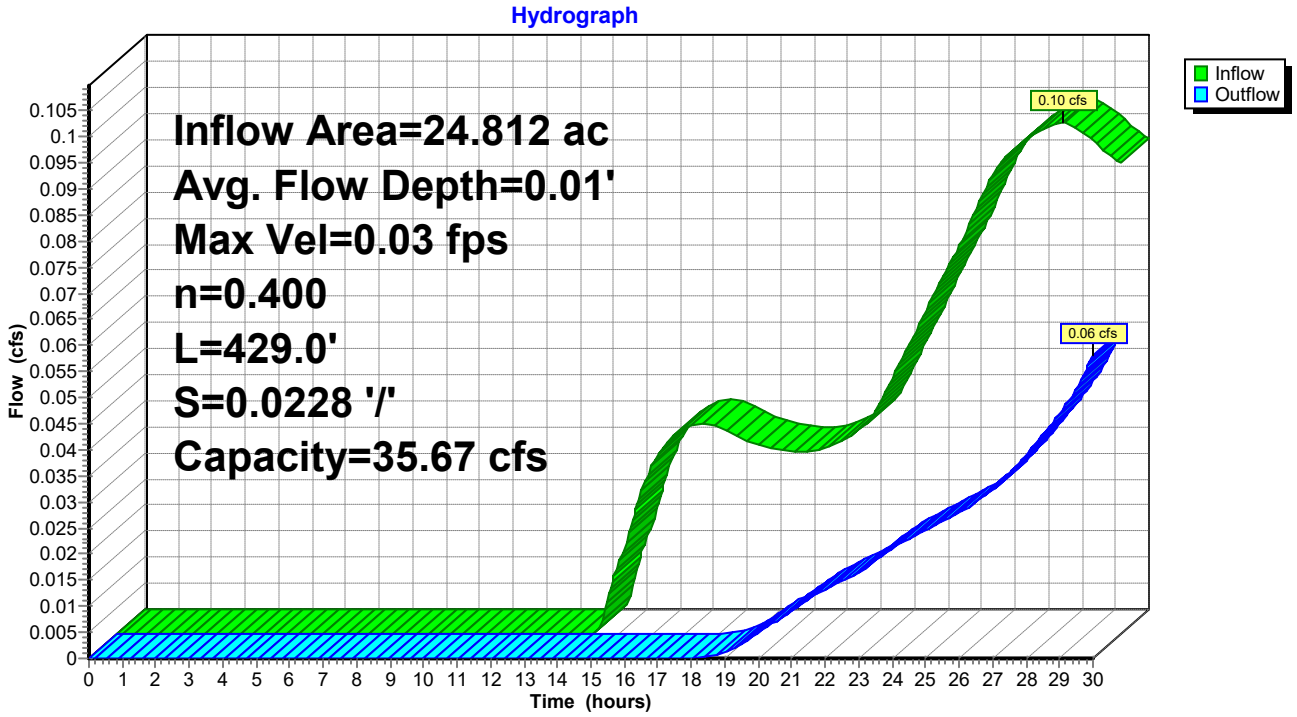
Inflow Area = 24.812 ac, 0.91% Impervious, Inflow Depth > 0.03" for 10-Year event
Inflow = 0.10 cfs @ 28.27 hrs, Volume= 0.072 af
Outflow = 0.06 cfs @ 30.00 hrs, Volume= 0.022 af, Atten= 41%, Lag= 103.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.03 fps, Min. Travel Time= 221.6 min
Avg. Velocity = 0.02 fps, Avg. Travel Time= 321.5 min

Peak Storage= 1,155 cf @ 30.00 hrs
Average Depth at Peak Storage= 0.01'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 35.67 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 429.0' Slope= 0.0228 '/'
Inlet Invert= 849.80', Outlet Invert= 840.00'

Reach 2R: WOODS



Summary for Reach 3R: GRASS

[79] Warning: Submerged Pond DB1 Primary device # 2 OUTLET by 0.01'

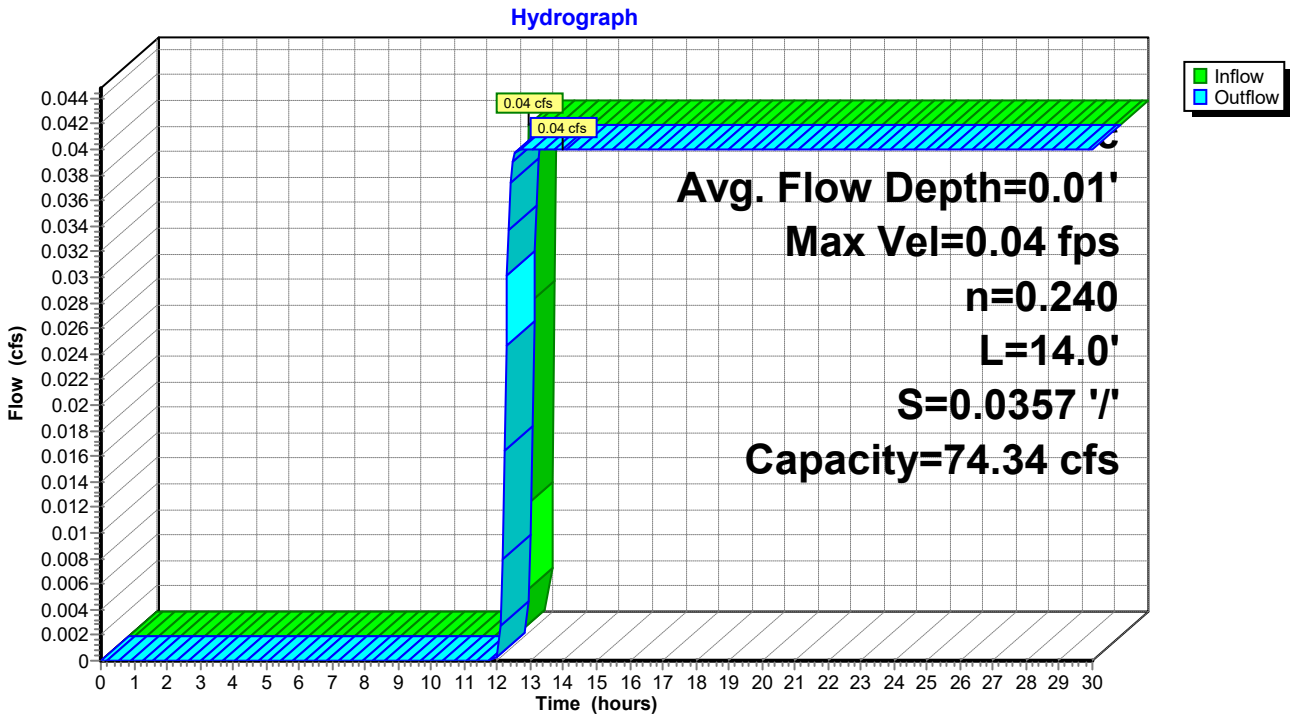
Inflow Area = 2.133 ac, 0.00% Impervious, Inflow Depth > 0.33" for 10-Year event
Inflow = 0.04 cfs @ 12.10 hrs, Volume= 0.060 af
Outflow = 0.04 cfs @ 14.00 hrs, Volume= 0.059 af, Atten= 0%, Lag= 114.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.04 fps, Min. Travel Time= 6.3 min
Avg. Velocity = 0.04 fps, Avg. Travel Time= 6.3 min

Peak Storage= 15 cf @ 13.90 hrs
Average Depth at Peak Storage= 0.01'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 74.34 cfs

200.00' x 0.50' deep channel, n= 0.240 Sheet flow over Dense Grass
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 14.0' Slope= 0.0357 '/'
Inlet Invert= 815.00', Outlet Invert= 814.50'

Reach 3R: GRASS

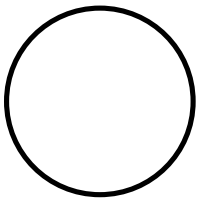


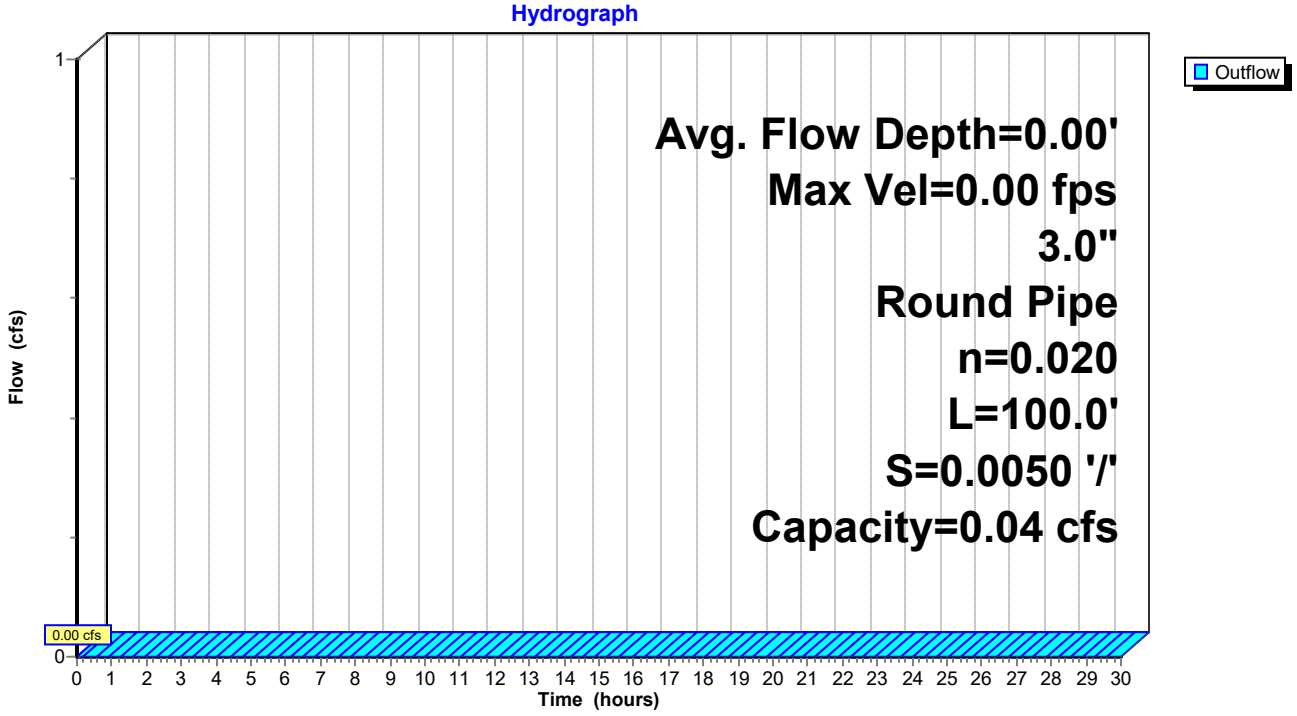
Summary for Reach 4R: (new Reach)

[43] Hint: Has no inflow (Outflow=Zero)

Bank-Full Depth= 0.25' Flow Area= 0.0 sf, Capacity= 0.04 cfs

3.0" Round Pipe
n= 0.020 Corrugated PE, corrugated interior
Length= 100.0' Slope= 0.0050 '/'
Inlet Invert= 0.00', Outlet Invert= -0.50'





Summary for Reach 5R: WOODS

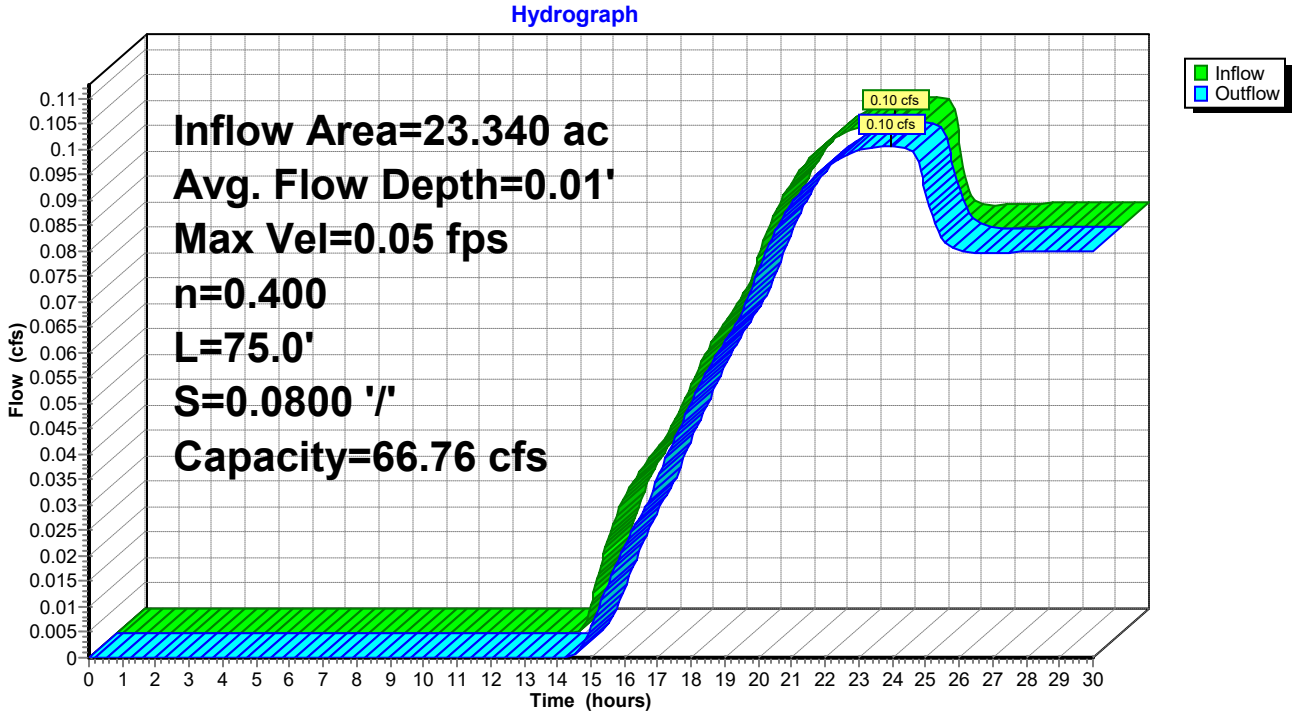
Inflow Area = 23.340 ac, 0.97% Impervious, Inflow Depth > 0.05" for 10-Year event
Inflow = 0.10 cfs @ 23.25 hrs, Volume= 0.096 af
Outflow = 0.10 cfs @ 23.94 hrs, Volume= 0.090 af, Atten= 0%, Lag= 41.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.05 fps, Min. Travel Time= 25.3 min
Avg. Velocity = 0.04 fps, Avg. Travel Time= 29.0 min

Peak Storage= 152 cf @ 23.52 hrs
Average Depth at Peak Storage= 0.01'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 66.76 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 75.0' Slope= 0.0800 '/'
Inlet Invert= 868.00', Outlet Invert= 862.00'

Reach 5R: WOODS



Summary for Reach 6R: WOODS

[61] Hint: Exceeded Reach 3R outlet invert by 0.01' @ 30.00 hrs

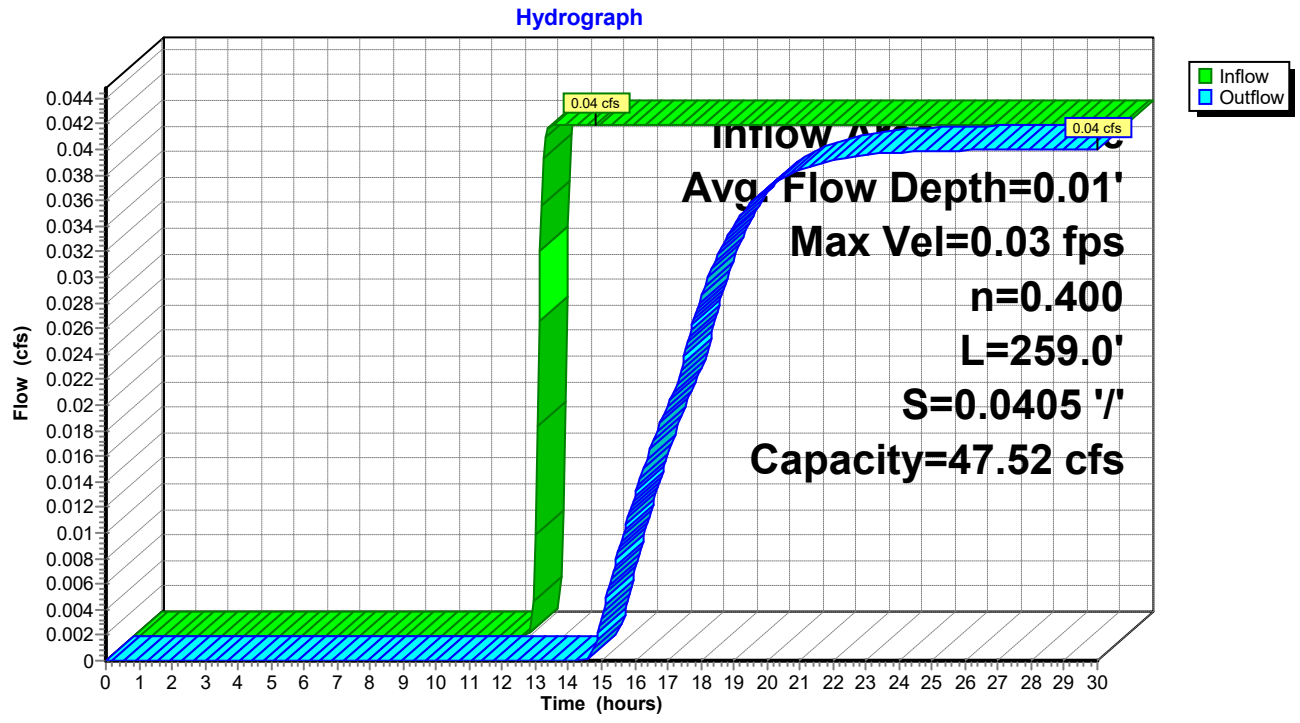
Inflow Area = 2.133 ac, 0.00% Impervious, Inflow Depth > 0.33" for 10-Year event
Inflow = 0.04 cfs @ 14.00 hrs, Volume= 0.059 af
Outflow = 0.04 cfs @ 30.00 hrs, Volume= 0.042 af, Atten= 0%, Lag= 960.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.03 fps, Min. Travel Time= 149.1 min
Avg. Velocity = 0.03 fps, Avg. Travel Time= 157.9 min

Peak Storage= 358 cf @ 30.00 hrs
Average Depth at Peak Storage= 0.01'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 47.52 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 259.0' Slope= 0.0405 '/'
Inlet Invert= 814.50', Outlet Invert= 804.00'

Reach 6R: WOODS



Summary for Reach 7R: GRASS

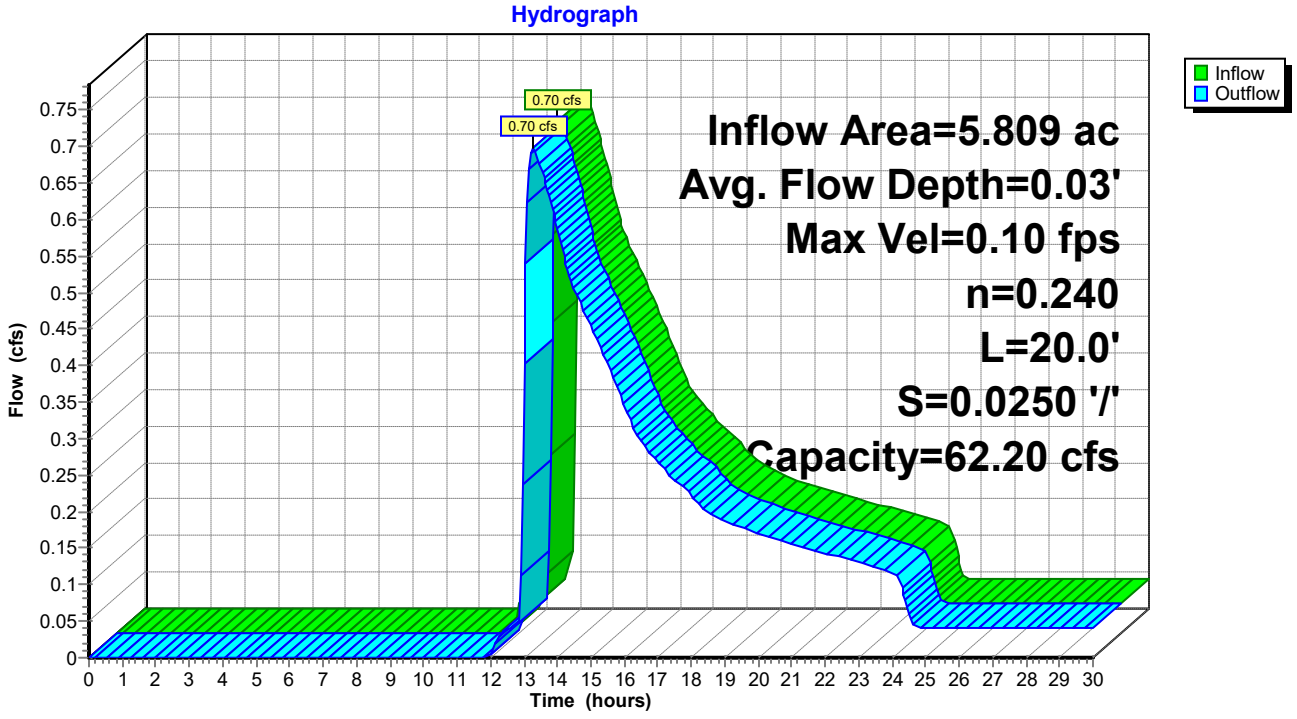
Inflow Area = 5.809 ac, 0.00% Impervious, Inflow Depth > 0.58" for 10-Year event
Inflow = 0.70 cfs @ 13.17 hrs, Volume= 0.280 af
Outflow = 0.70 cfs @ 13.27 hrs, Volume= 0.279 af, Atten= 0%, Lag= 5.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.10 fps, Min. Travel Time= 3.2 min
Avg. Velocity = 0.06 fps, Avg. Travel Time= 6.0 min

Peak Storage= 136 cf @ 13.22 hrs
Average Depth at Peak Storage= 0.03'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 62.20 cfs

200.00' x 0.50' deep channel, n= 0.240 Sheet flow over Dense Grass
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 20.0' Slope= 0.0250 '/'
Inlet Invert= 805.50', Outlet Invert= 805.00'

Reach 7R: GRASS



Summary for Reach 8R: WOODS

[62] Hint: Exceeded Reach 7R OUTLET depth by 0.02' @ 15.80 hrs

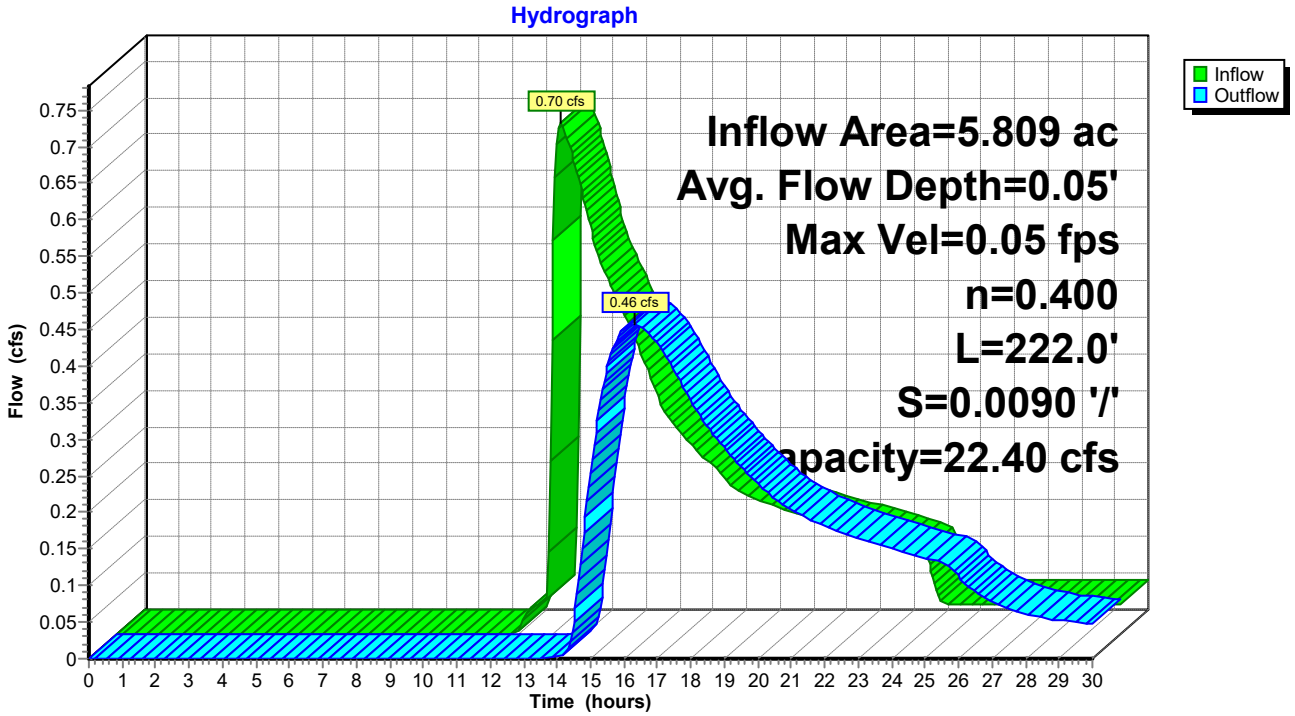
Inflow Area = 5.809 ac, 0.00% Impervious, Inflow Depth > 0.58" for 10-Year event
Inflow = 0.70 cfs @ 13.27 hrs, Volume= 0.279 af
Outflow = 0.46 cfs @ 16.29 hrs, Volume= 0.262 af, Atten= 35%, Lag= 180.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.05 fps, Min. Travel Time= 78.9 min
Avg. Velocity = 0.03 fps, Avg. Travel Time= 123.7 min

Peak Storage= 2,161 cf @ 14.97 hrs
Average Depth at Peak Storage= 0.05'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 22.40 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 222.0' Slope= 0.0090 '/'
Inlet Invert= 805.00', Outlet Invert= 803.00'

Reach 8R: WOODS



Summary for Reach 9R: WOODS-2

[62] Hint: Exceeded Reach 10R OUTLET depth by 0.01' @ 26.70 hrs

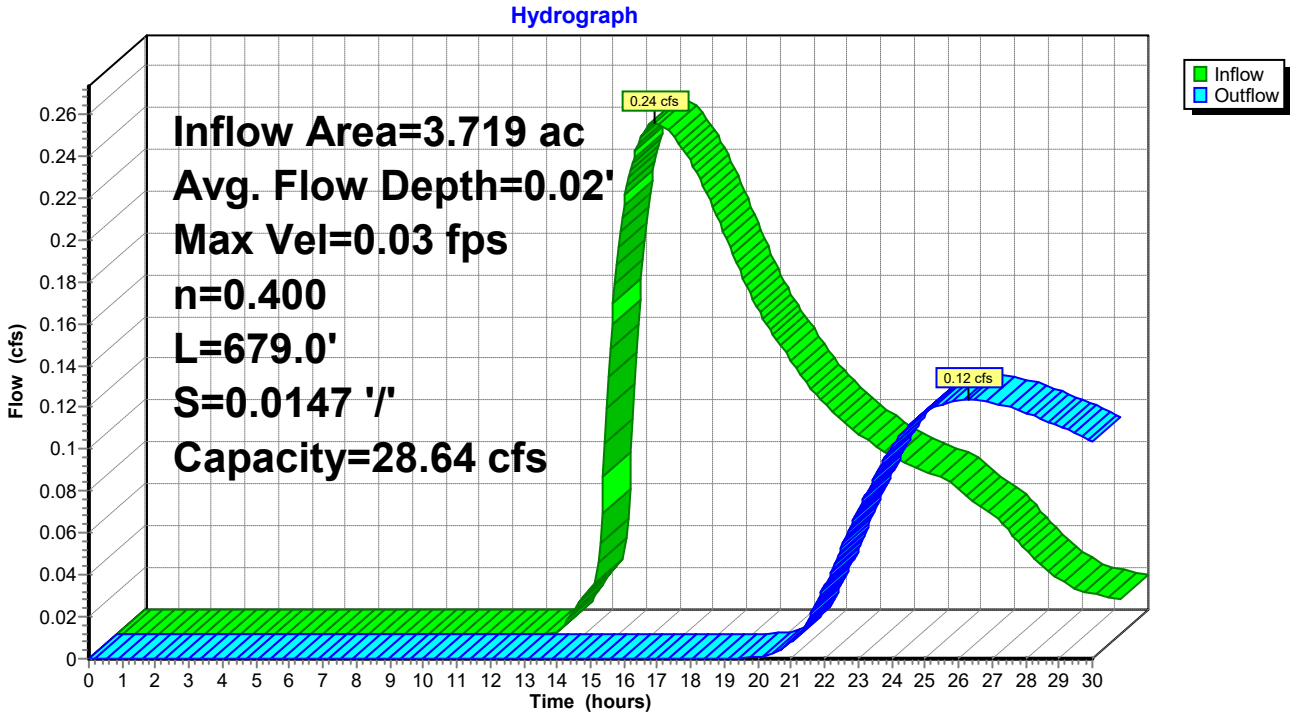
Inflow Area = 3.719 ac, 16.80% Impervious, Inflow Depth > 0.47" for 10-Year event
Inflow = 0.24 cfs @ 16.10 hrs, Volume= 0.146 af
Outflow = 0.12 cfs @ 26.29 hrs, Volume= 0.071 af, Atten= 49%, Lag= 611.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.03 fps, Min. Travel Time= 349.8 min
Avg. Velocity = 0.03 fps, Avg. Travel Time= 430.7 min

Peak Storage= 2,593 cf @ 20.46 hrs
Average Depth at Peak Storage= 0.02'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 28.64 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 679.0' Slope= 0.0147 '/'
Inlet Invert= 858.00', Outlet Invert= 848.00'

Reach 9R: WOODS-2



Summary for Reach 10R: WOODS-1

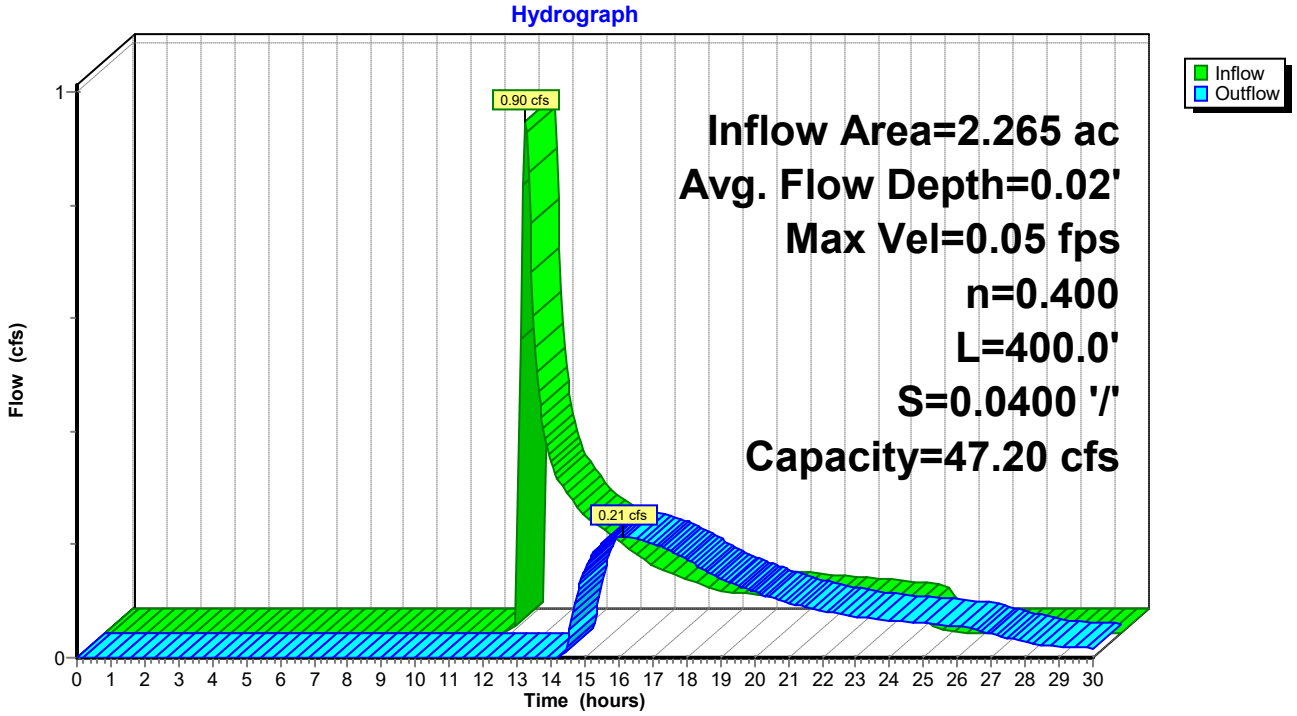
Inflow Area = 2.265 ac, 25.48% Impervious, Inflow Depth = 0.70" for 10-Year event
Inflow = 0.90 cfs @ 12.42 hrs, Volume= 0.133 af
Outflow = 0.21 cfs @ 16.11 hrs, Volume= 0.126 af, Atten= 76%, Lag= 221.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.05 fps, Min. Travel Time= 122.9 min
Avg. Velocity = 0.04 fps, Avg. Travel Time= 185.0 min

Peak Storage= 1,577 cf @ 14.06 hrs
Average Depth at Peak Storage= 0.02'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 47.20 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 400.0' Slope= 0.0400 '/'
Inlet Invert= 874.00', Outlet Invert= 858.00'

Reach 10R: WOODS-1



Summary for Reach 11R: WOODS-3

[62] Hint: Exceeded Reach 9R OUTLET depth by 0.01' @ 29.95 hrs
[62] Hint: Exceeded Reach 17R OUTLET depth by 0.02' @ 29.95 hrs

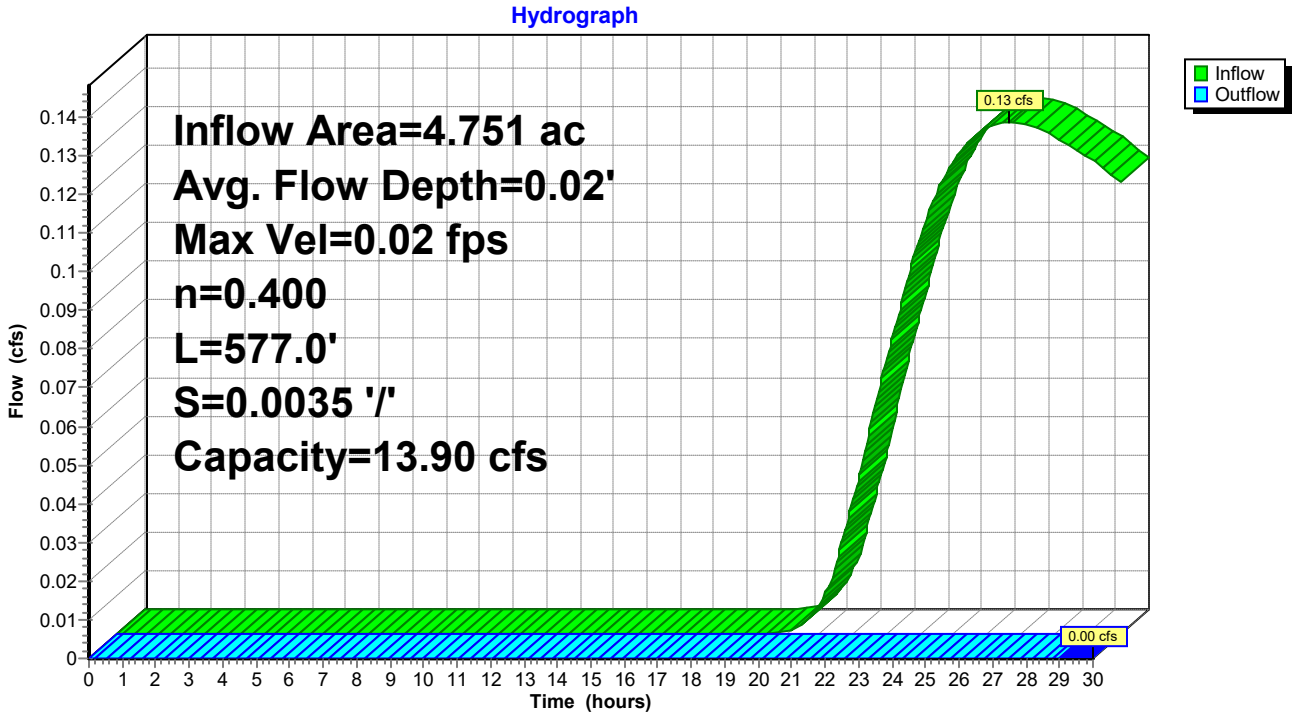
Inflow Area = 4.751 ac, 13.84% Impervious, Inflow Depth > 0.19" for 10-Year event
Inflow = 0.13 cfs @ 26.68 hrs, Volume= 0.076 af
Outflow = 0.00 cfs @ 30.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 199.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.02 fps, Min. Travel Time= 573.5 min
Avg. Velocity = 0.01 fps, Avg. Travel Time= 964.2 min

Peak Storage= 2,436 cf @ 30.00 hrs
Average Depth at Peak Storage= 0.02'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 13.90 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 577.0' Slope= 0.0035 '/'
Inlet Invert= 848.00', Outlet Invert= 846.00'

Reach 11R: WOODS-3



Summary for Reach 12R: GRASS

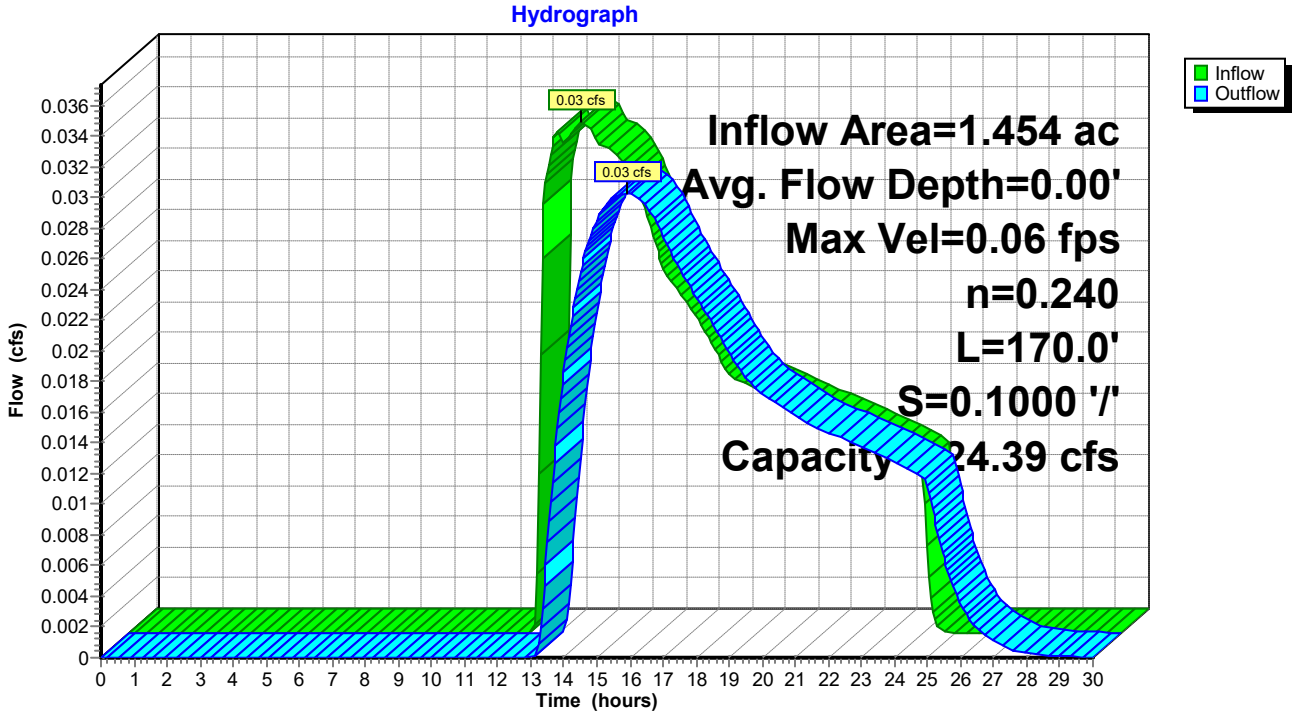
Inflow Area = 1.454 ac, 3.28% Impervious, Inflow Depth = 0.16" for 10-Year event
Inflow = 0.03 cfs @ 13.70 hrs, Volume= 0.020 af
Outflow = 0.03 cfs @ 15.88 hrs, Volume= 0.020 af, Atten= 9%, Lag= 131.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.06 fps, Min. Travel Time= 49.5 min
Avg. Velocity = 0.06 fps, Avg. Travel Time= 49.5 min

Peak Storage= 90 cf @ 15.06 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 124.39 cfs

200.00' x 0.50' deep channel, n= 0.240 Sheet flow over Dense Grass
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 170.0' Slope= 0.1000 '/'
Inlet Invert= 883.00', Outlet Invert= 866.00'

Reach 12R: GRASS



Summary for Reach 13R: WOODS-4

Inflow Area = 4.751 ac, 13.84% Impervious, Inflow Depth > 0.00" for 10-Year event
Inflow = 0.00 cfs @ 30.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 30.00 hrs, Volume= 0.000 af, Atten= 98%, Lag= 0.0 min

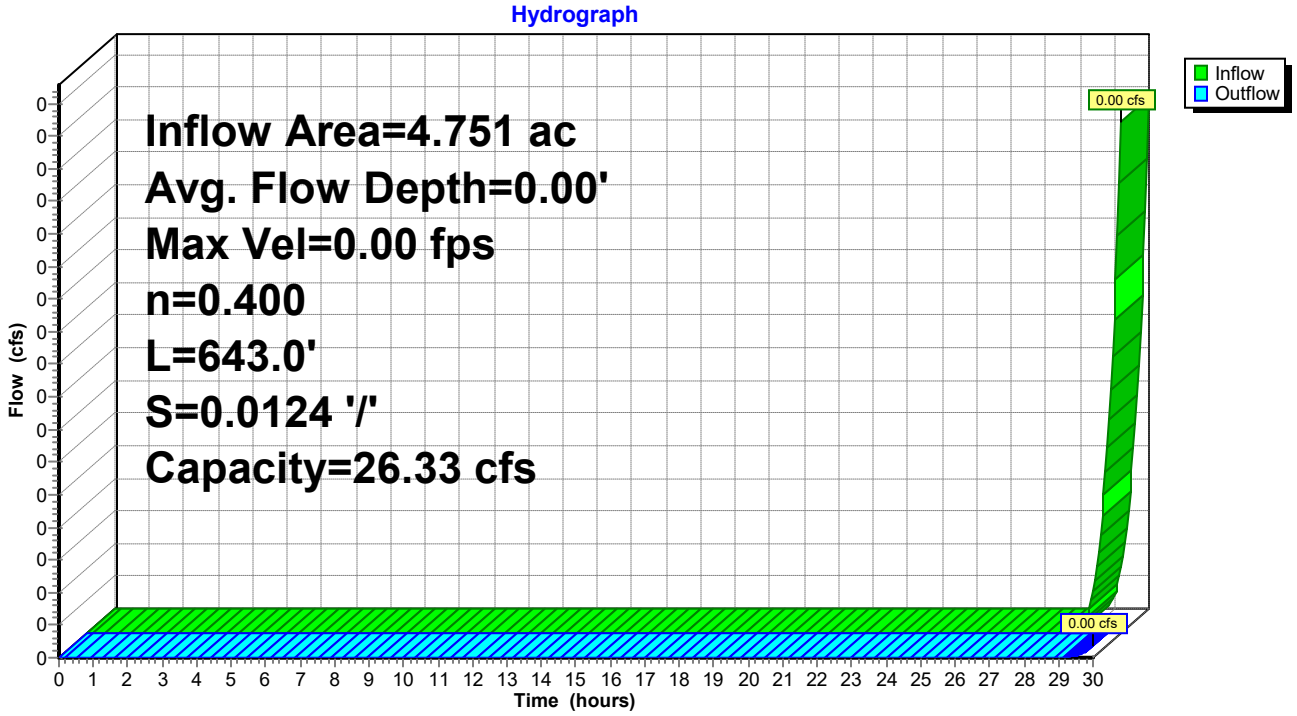
Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 30.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 26.33 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 643.0' Slope= 0.0124 '/'
Inlet Invert= 846.00', Outlet Invert= 838.00'

‡

Reach 13R: WOODS-4



Summary for Reach 14R: WOODS

[79] Warning: Submerged Pond DB5 Primary device # 2 OUTLET by 0.01'

Inflow Area = 1.032 ac, 3.16% Impervious, Inflow Depth = 0.25" for 10-Year event
Inflow = 0.08 cfs @ 12.42 hrs, Volume= 0.021 af
Outflow = 0.03 cfs @ 15.83 hrs, Volume= 0.021 af, Atten= 58%, Lag= 204.7 min

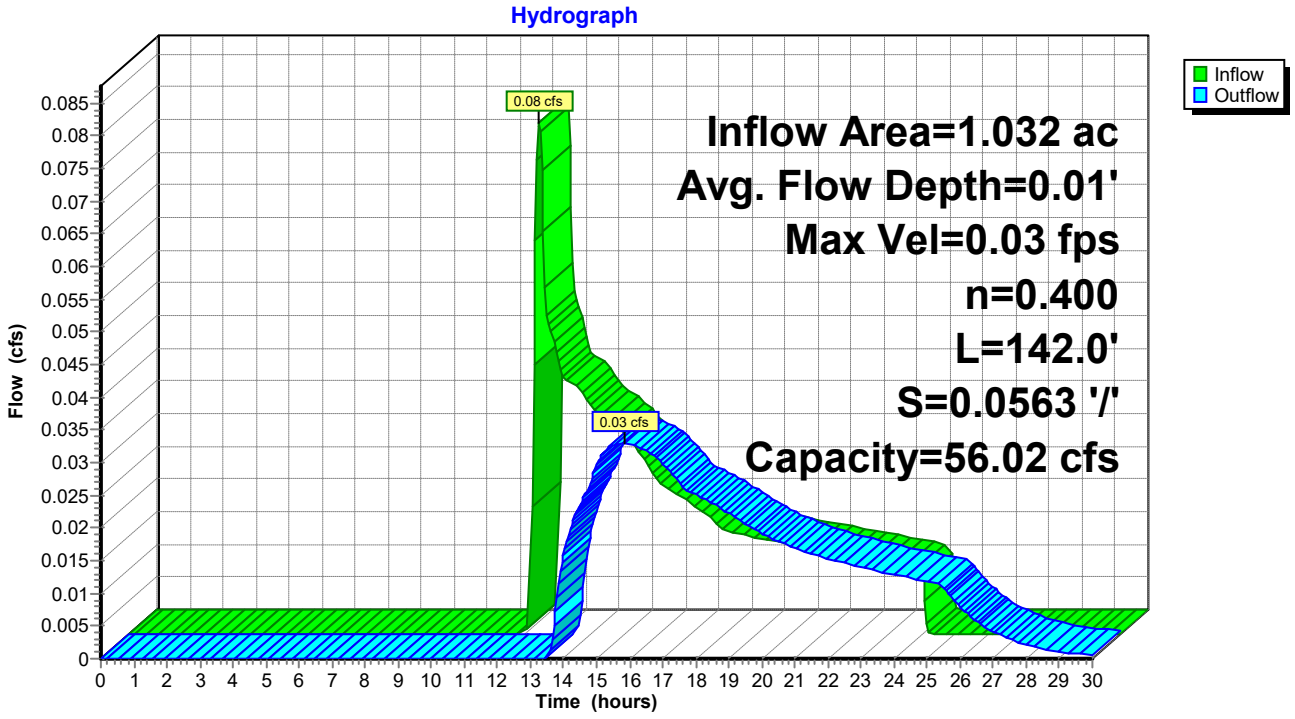
Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.03 fps, Min. Travel Time= 81.1 min
Avg. Velocity = 0.03 fps, Avg. Travel Time= 90.4 min

Peak Storage= 160 cf @ 14.48 hrs
Average Depth at Peak Storage= 0.01'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 56.02 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 142.0' Slope= 0.0563 '/'
Inlet Invert= 864.00', Outlet Invert= 856.00'

‡

Reach 14R: WOODS



Summary for Reach 15R: WOODS

[61] Hint: Exceeded Reach 5R outlet invert by 0.01' @ 25.05 hrs

Inflow Area = 23.340 ac, 0.97% Impervious, Inflow Depth > 0.05" for 10-Year event
Inflow = 0.10 cfs @ 23.94 hrs, Volume= 0.090 af
Outflow = 0.09 cfs @ 28.47 hrs, Volume= 0.043 af, Atten= 11%, Lag= 272.1 min

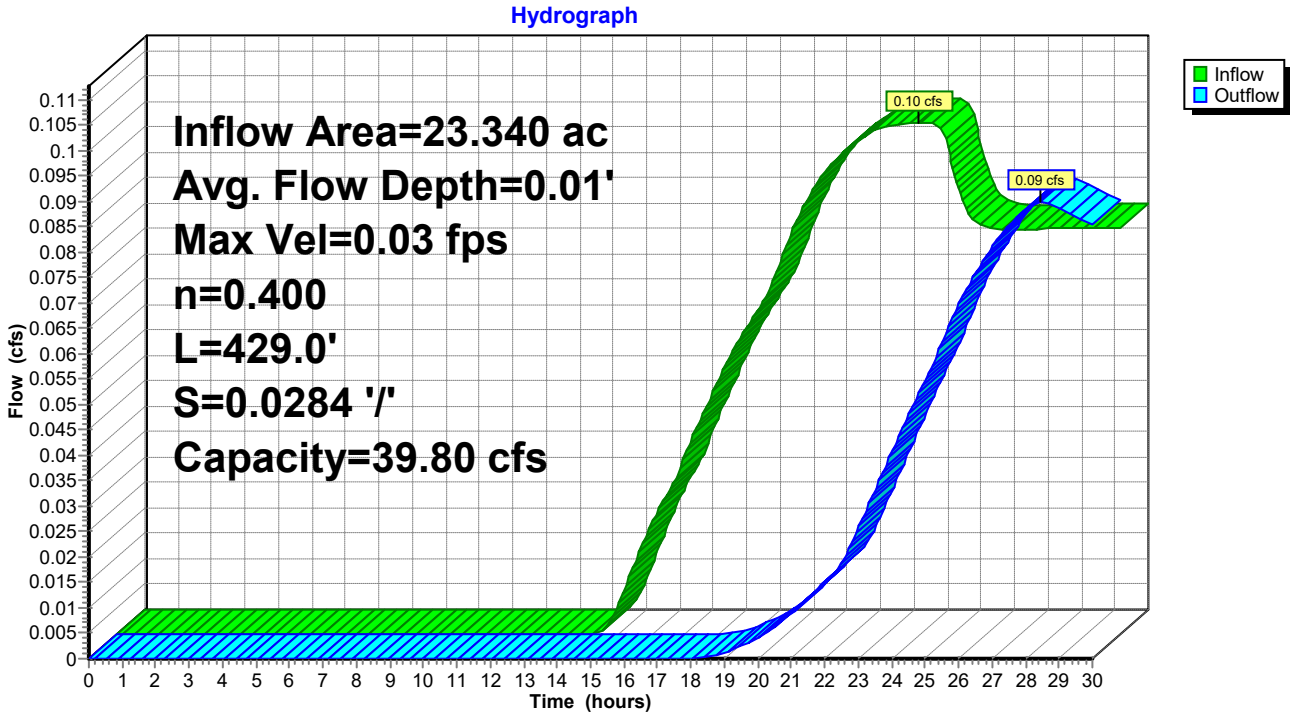
Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.03 fps, Min. Travel Time= 204.3 min
Avg. Velocity = 0.03 fps, Avg. Travel Time= 259.8 min

Peak Storage= 1,100 cf @ 25.07 hrs
Average Depth at Peak Storage= 0.01'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 39.80 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 429.0' Slope= 0.0284 '/'
Inlet Invert= 862.00', Outlet Invert= 849.80'

‡

Reach 15R: WOODS



Summary for Reach 16R: WOODS

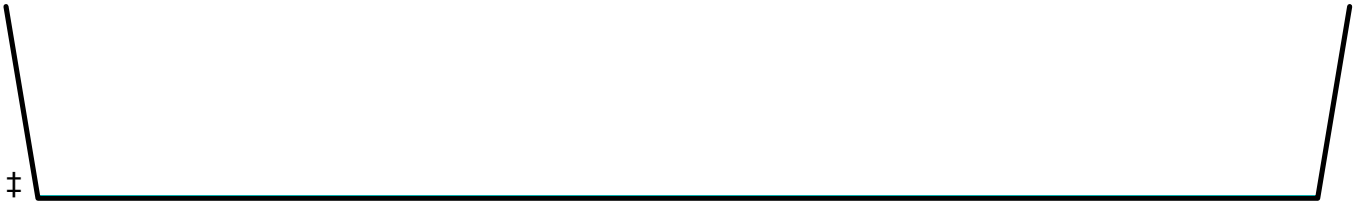
[79] Warning: Submerged Pond DB3 Primary device # 2 OUTLET by 0.01'

Inflow Area = 1.471 ac, 0.00% Impervious, Inflow Depth = 0.24" for 10-Year event
Inflow = 0.10 cfs @ 12.50 hrs, Volume= 0.030 af
Outflow = 0.04 cfs @ 17.51 hrs, Volume= 0.029 af, Atten= 58%, Lag= 300.5 min

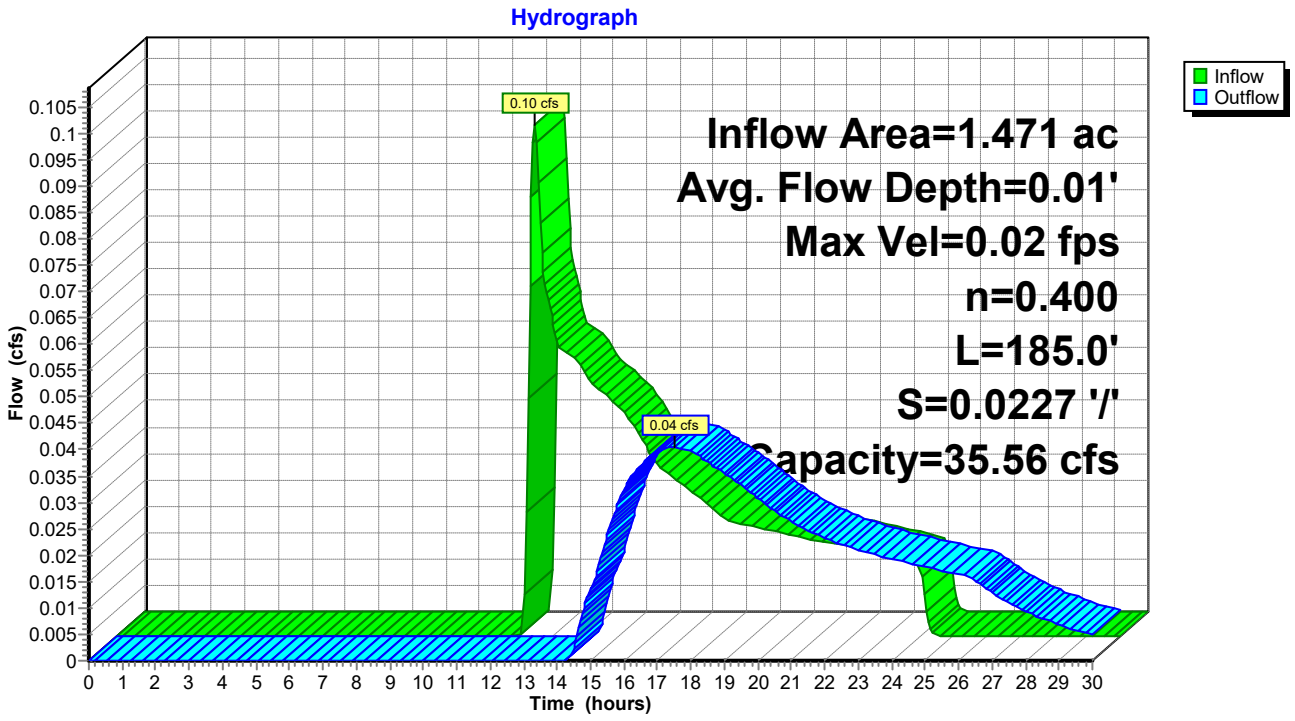
Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.02 fps, Min. Travel Time= 127.9 min
Avg. Velocity = 0.02 fps, Avg. Travel Time= 163.0 min

Peak Storage= 310 cf @ 15.38 hrs
Average Depth at Peak Storage= 0.01'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 35.56 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 185.0' Slope= 0.0227 '/'
Inlet Invert= 854.00', Outlet Invert= 849.80'



Reach 16R: WOODS



Summary for Reach 17R: WOODS-2

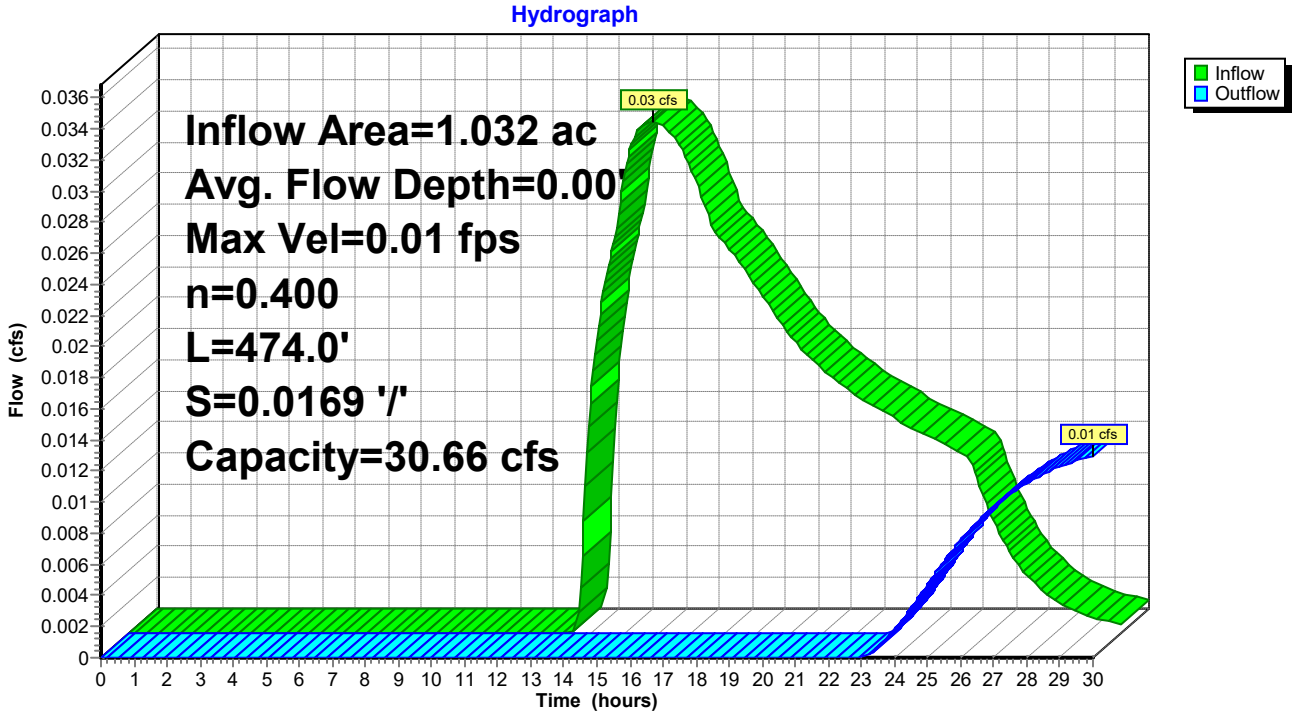
Inflow Area = 1.032 ac, 3.16% Impervious, Inflow Depth > 0.25" for 10-Year event
Inflow = 0.03 cfs @ 15.83 hrs, Volume= 0.021 af
Outflow = 0.01 cfs @ 30.00 hrs, Volume= 0.004 af, Atten= 61%, Lag= 850.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.01 fps, Min. Travel Time= 559.9 min
Avg. Velocity = 0.01 fps, Avg. Travel Time= 559.9 min

Peak Storage= 455 cf @ 23.41 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 30.66 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 474.0' Slope= 0.0169 '/'
Inlet Invert= 856.00', Outlet Invert= 848.00'

Reach 17R: WOODS-2



Summary for Reach 18R: WOODS-4

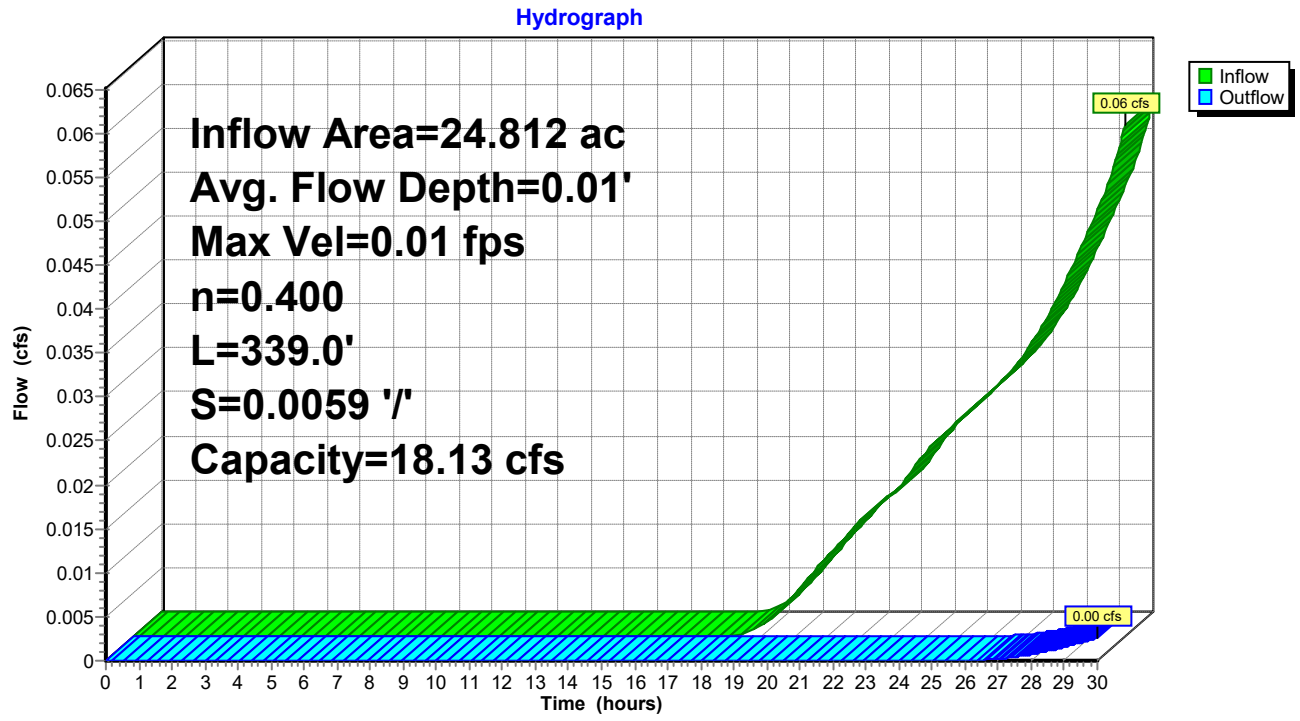
[61] Hint: Exceeded Reach 2R outlet invert by 0.01' @ 30.00 hrs

Inflow Area = 24.812 ac, 0.91% Impervious, Inflow Depth > 0.01" for 10-Year event
Inflow = 0.06 cfs @ 30.00 hrs, Volume= 0.022 af
Outflow = 0.00 cfs @ 30.00 hrs, Volume= 0.000 af, Atten= 95%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.01 fps, Min. Travel Time= 430.8 min
Avg. Velocity = 0.01 fps, Avg. Travel Time= 614.9 min

Peak Storage= 661 cf @ 30.00 hrs
Average Depth at Peak Storage= 0.01'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 18.13 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 339.0' Slope= 0.0059 '/'
Inlet Invert= 840.00', Outlet Invert= 838.00'



Summary for Reach CB-A: TO DMH-X

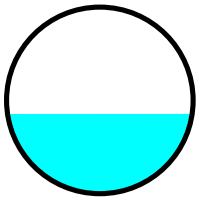
[52] Hint: Inlet/Outlet conditions not evaluated

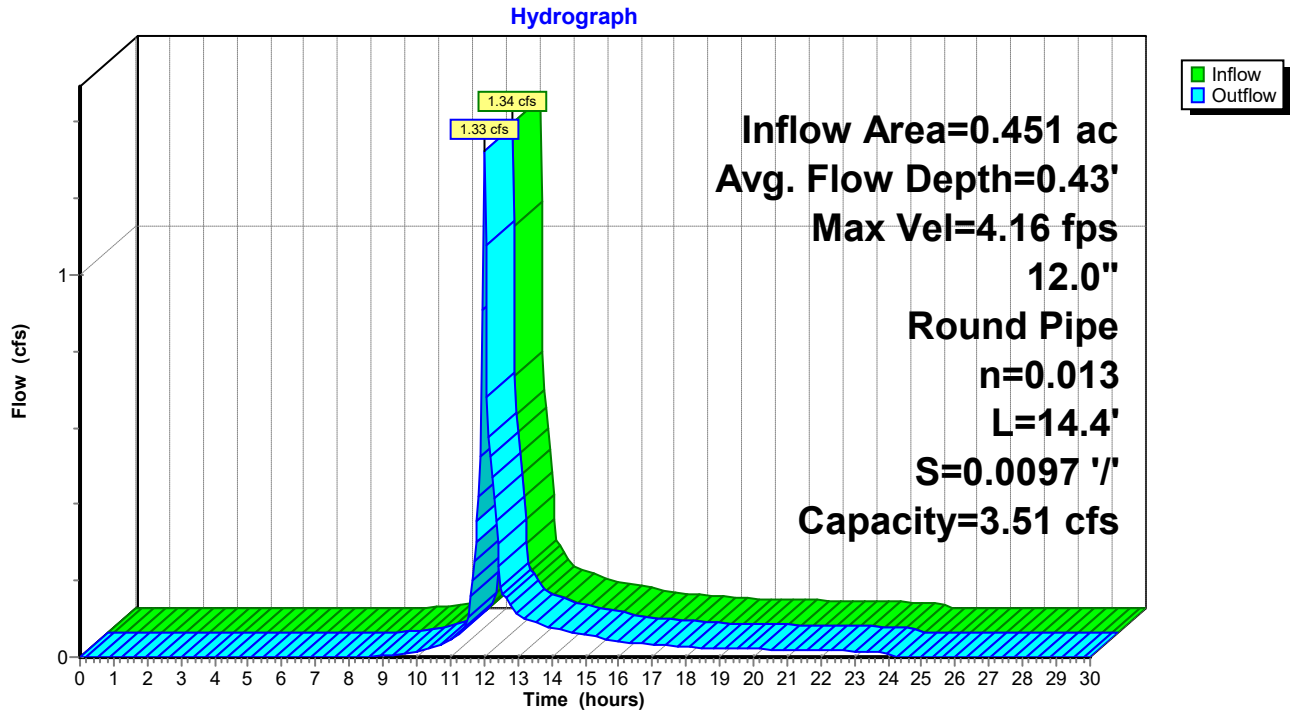
Inflow Area = 0.451 ac, 43.07% Impervious, Inflow Depth = 2.21" for 10-Year event
Inflow = 1.34 cfs @ 12.01 hrs, Volume= 0.083 af
Outflow = 1.33 cfs @ 12.01 hrs, Volume= 0.083 af, Atten= 1%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.16 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.47 fps, Avg. Travel Time= 0.2 min

Peak Storage= 5 cf @ 12.01 hrs
Average Depth at Peak Storage= 0.43'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.51 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 14.4' Slope= 0.0097 '/'
Inlet Invert= 901.29', Outlet Invert= 901.15'





Summary for Reach CB-B: TO DMH-A

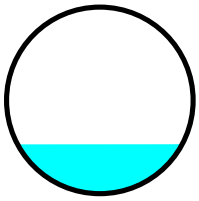
[52] Hint: Inlet/Outlet conditions not evaluated

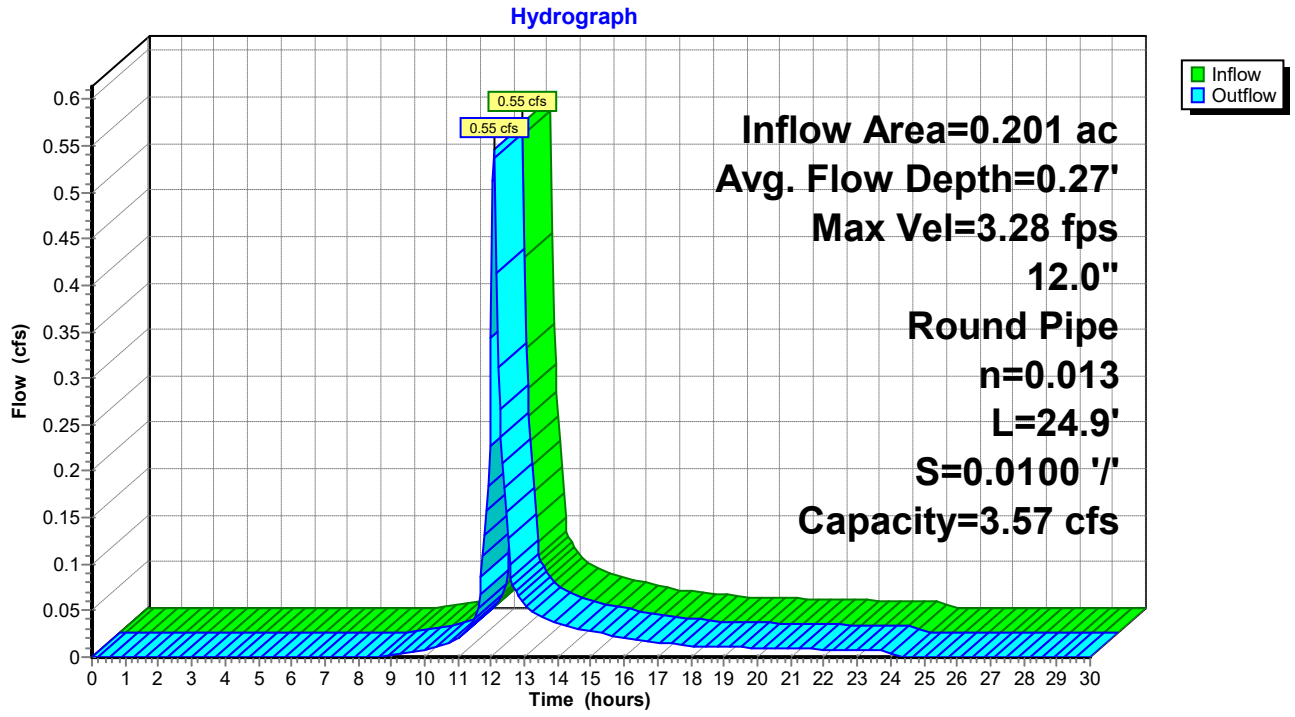
Inflow Area = 0.201 ac, 47.12% Impervious, Inflow Depth = 2.33" for 10-Year event
Inflow = 0.55 cfs @ 12.08 hrs, Volume= 0.039 af
Outflow = 0.55 cfs @ 12.08 hrs, Volume= 0.039 af, Atten= 0%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.28 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.17 fps, Avg. Travel Time= 0.4 min

Peak Storage= 4 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.27'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.57 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 24.9' Slope= 0.0100 '/'
Inlet Invert= 902.74', Outlet Invert= 902.49'





Summary for Reach CB-D: TO DMH-B

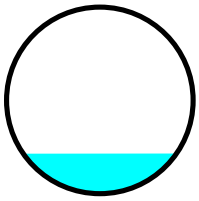
[52] Hint: Inlet/Outlet conditions not evaluated

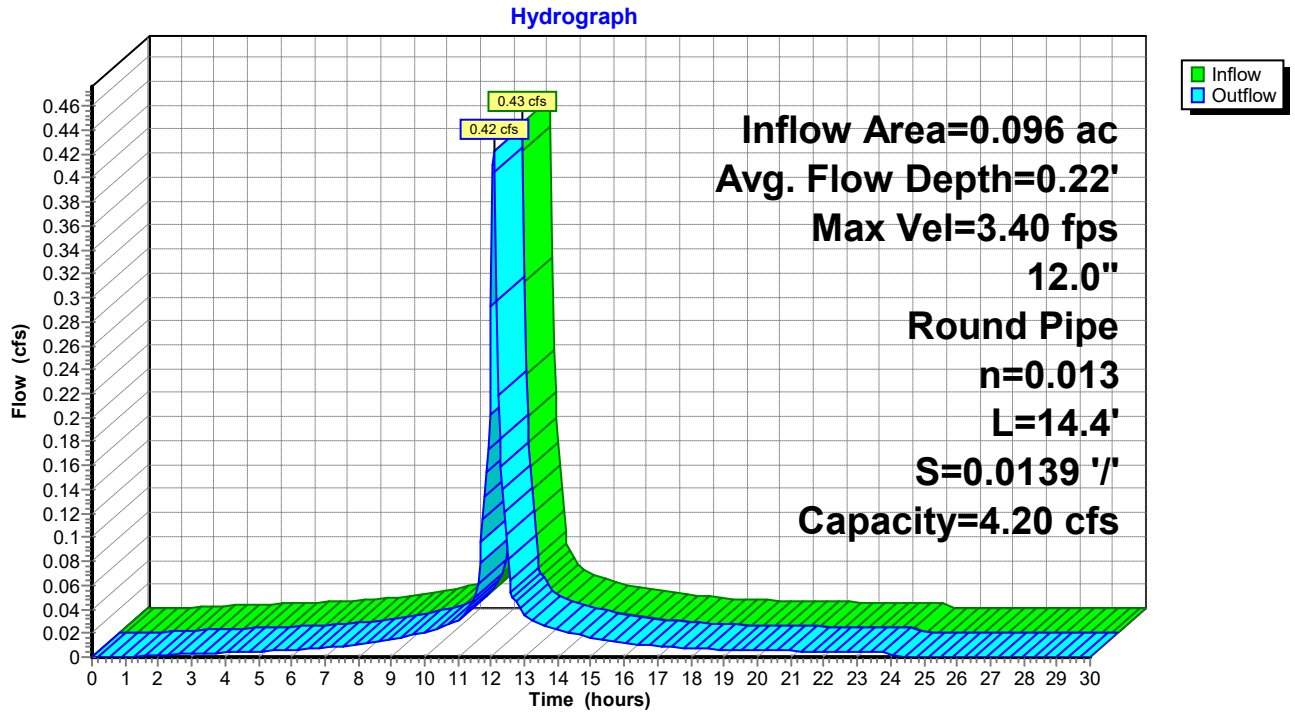
Inflow Area = 0.096 ac,100.00% Impervious, Inflow Depth = 4.26" for 10-Year event
Inflow = 0.43 cfs @ 12.07 hrs, Volume= 0.034 af
Outflow = 0.42 cfs @ 12.07 hrs, Volume= 0.034 af, Atten= 1%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.40 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.12 fps, Avg. Travel Time= 0.2 min

Peak Storage= 2 cf @ 12.07 hrs
Average Depth at Peak Storage= 0.22'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 4.20 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 14.4' Slope= 0.0139 '/'
Inlet Invert= 899.93', Outlet Invert= 899.73'





Summary for Reach CB-E: TO DMH-B

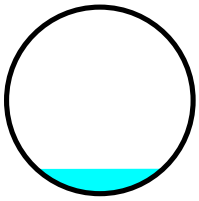
[52] Hint: Inlet/Outlet conditions not evaluated

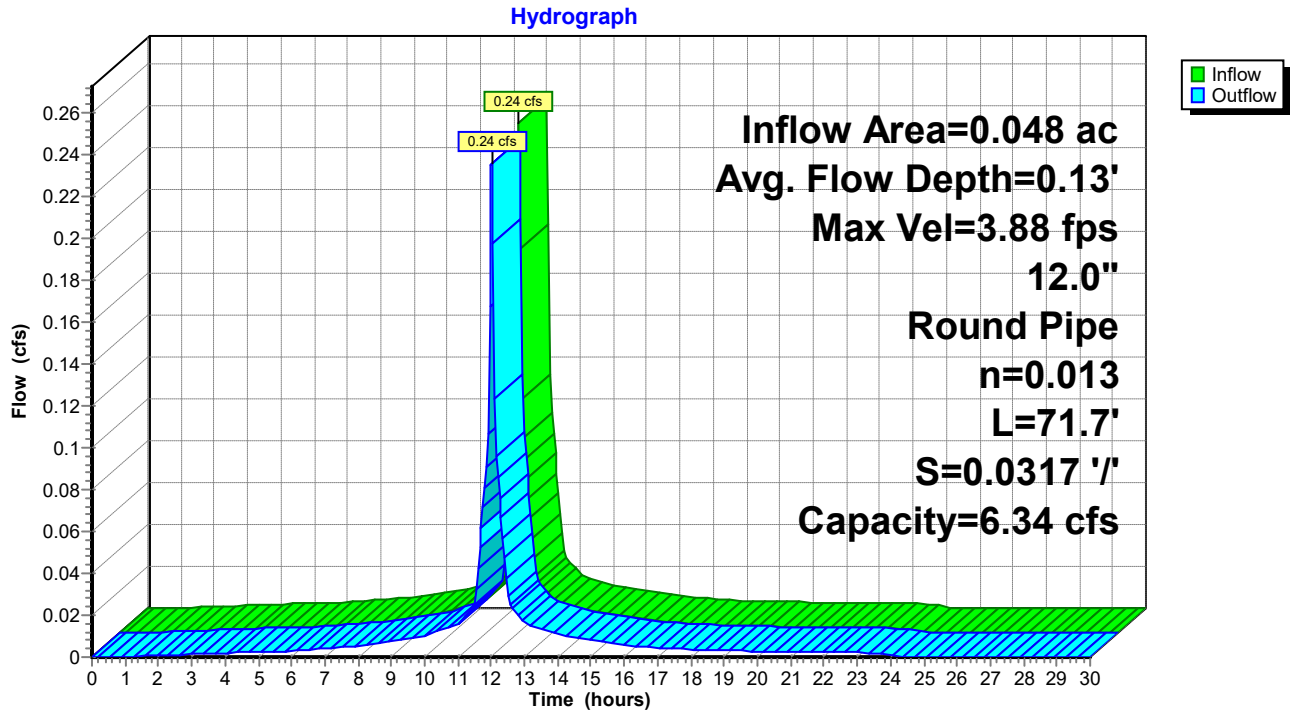
Inflow Area = 0.048 ac,100.00% Impervious, Inflow Depth = 4.26" for 10-Year event
Inflow = 0.24 cfs @ 12.00 hrs, Volume= 0.017 af
Outflow = 0.24 cfs @ 12.01 hrs, Volume= 0.017 af, Atten= 3%, Lag= 0.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.88 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 1.24 fps, Avg. Travel Time= 1.0 min

Peak Storage= 4 cf @ 12.00 hrs
Average Depth at Peak Storage= 0.13'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 6.34 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 71.7' Slope= 0.0317 '/'
Inlet Invert= 902.00', Outlet Invert= 899.73'





Summary for Reach DCB-C: TO DMH-A

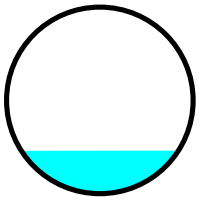
[52] Hint: Inlet/Outlet conditions not evaluated

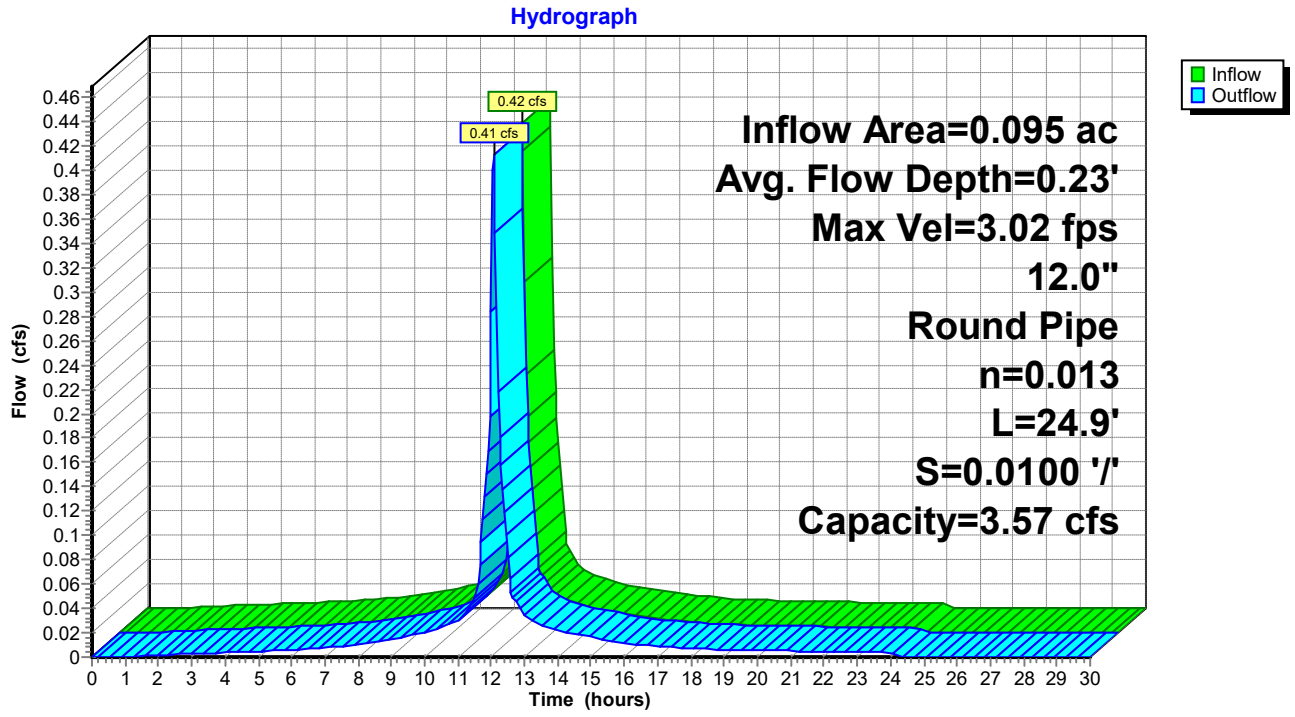
Inflow Area = 0.095 ac,100.00% Impervious, Inflow Depth = 4.26" for 10-Year event
Inflow = 0.42 cfs @ 12.07 hrs, Volume= 0.034 af
Outflow = 0.41 cfs @ 12.08 hrs, Volume= 0.034 af, Atten= 1%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.02 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.00 fps, Avg. Travel Time= 0.4 min

Peak Storage= 3 cf @ 12.07 hrs
Average Depth at Peak Storage= 0.23'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.57 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 24.9' Slope= 0.0100 '/'
Inlet Invert= 902.74', Outlet Invert= 902.49'





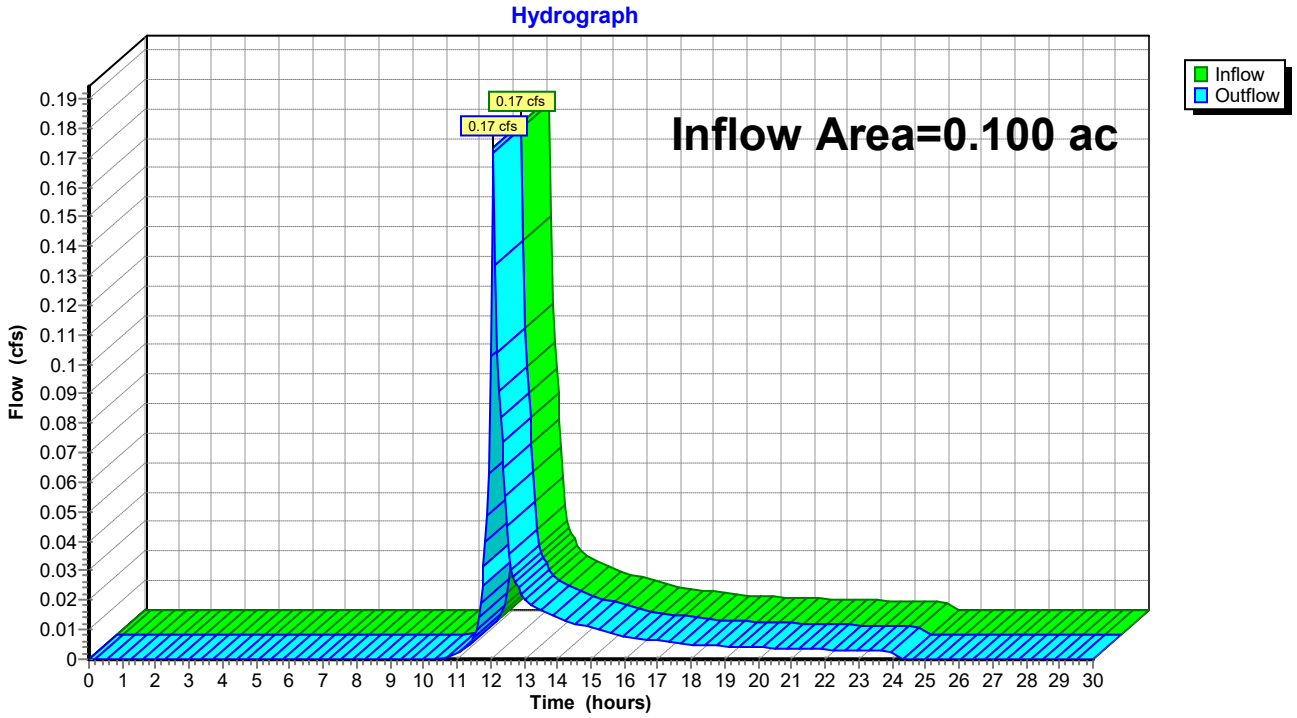
Summary for Reach DCB-F: (new Reach)

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.100 ac, 49.10% Impervious, Inflow Depth = 1.53" for 10-Year event
Inflow = 0.17 cfs @ 12.09 hrs, Volume= 0.013 af
Outflow = 0.17 cfs @ 12.09 hrs, Volume= 0.013 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DCB-F: (new Reach)



Summary for Reach DCB1: TO DMH1

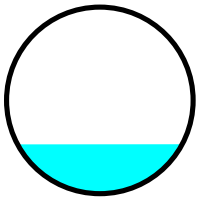
[52] Hint: Inlet/Outlet conditions not evaluated

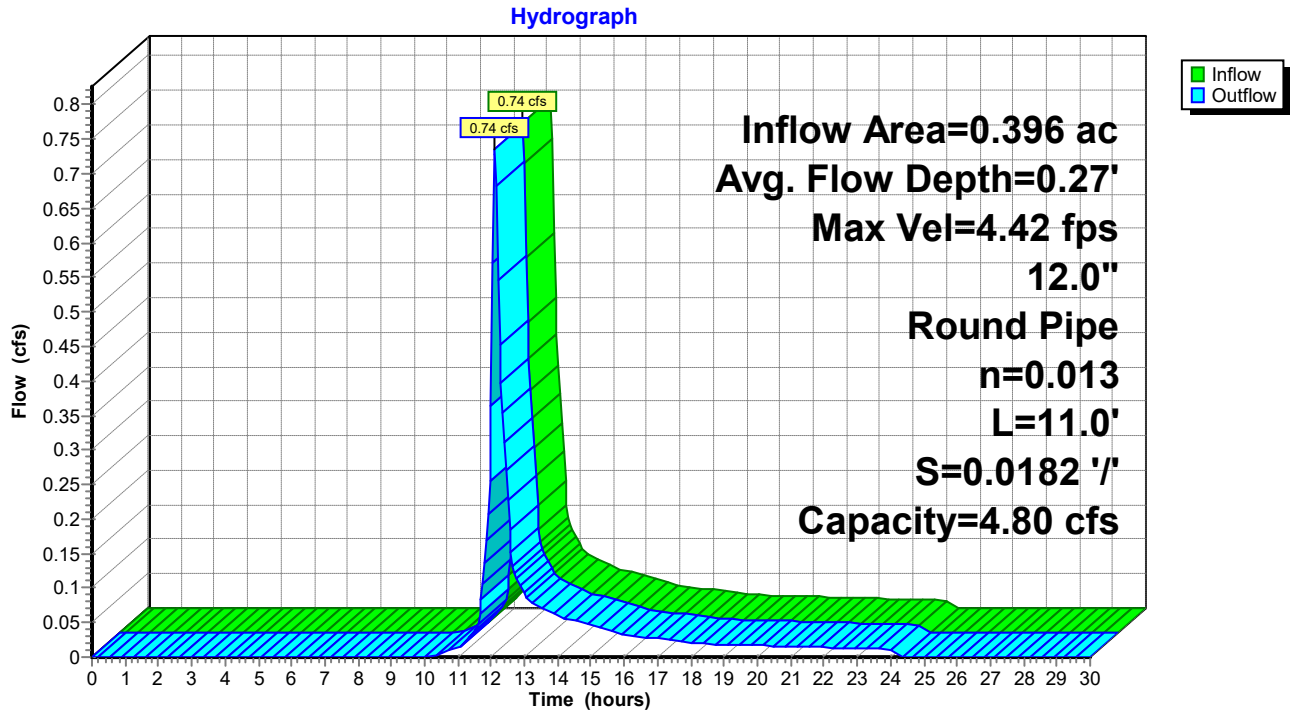
Inflow Area = 0.396 ac, 26.33% Impervious, Inflow Depth = 1.73" for 10-Year event
Inflow = 0.74 cfs @ 12.11 hrs, Volume= 0.057 af
Outflow = 0.74 cfs @ 12.11 hrs, Volume= 0.057 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.42 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 1.69 fps, Avg. Travel Time= 0.1 min

Peak Storage= 2 cf @ 12.11 hrs
Average Depth at Peak Storage= 0.27'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 4.80 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 11.0' Slope= 0.0182 '/'
Inlet Invert= 896.60', Outlet Invert= 896.40'





Summary for Reach DCB2: TO DMH#1

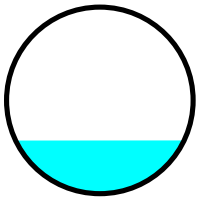
[52] Hint: Inlet/Outlet conditions not evaluated

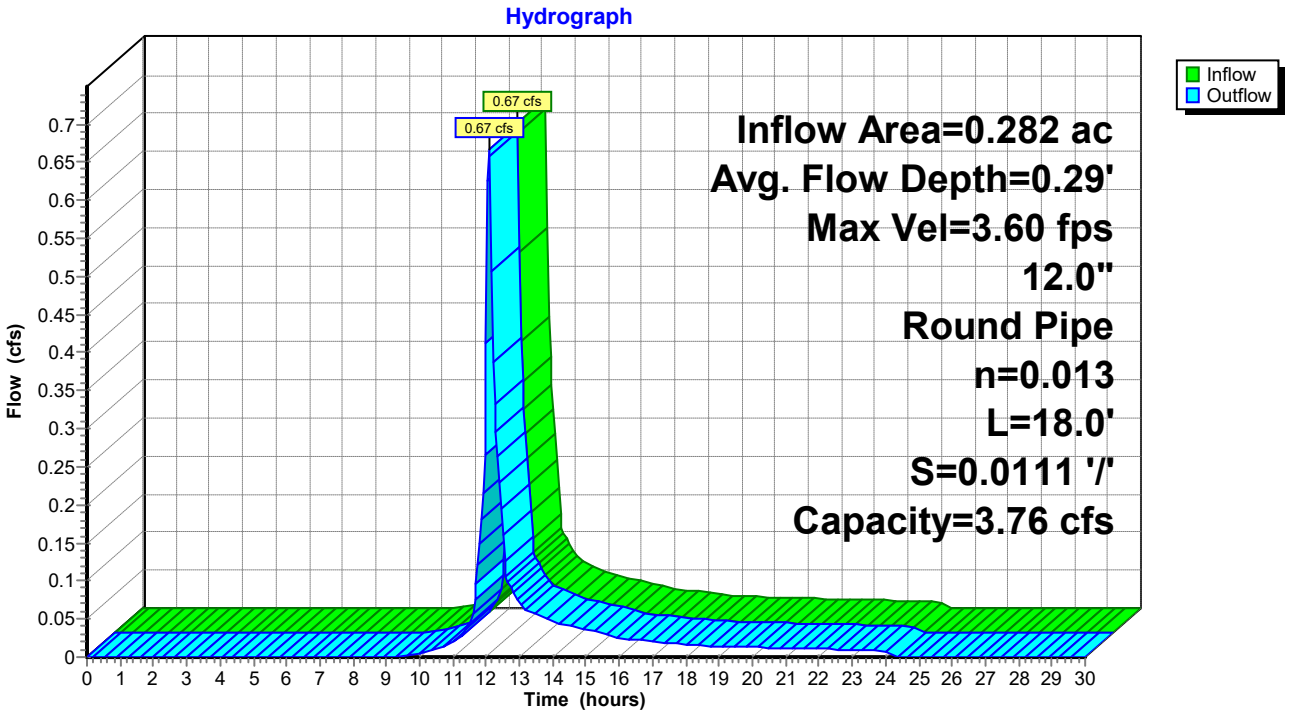
Inflow Area = 0.282 ac, 37.25% Impervious, Inflow Depth = 2.03" for 10-Year event
Inflow = 0.67 cfs @ 12.08 hrs, Volume= 0.048 af
Outflow = 0.67 cfs @ 12.08 hrs, Volume= 0.048 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.60 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.32 fps, Avg. Travel Time= 0.2 min

Peak Storage= 3 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.29'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.76 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 18.0' Slope= 0.0111 '/'
Inlet Invert= 896.60', Outlet Invert= 896.40'





Summary for Reach DMH-A: TO DMH-D

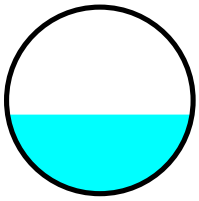
[52] Hint: Inlet/Outlet conditions not evaluated
[62] Hint: Exceeded Reach CB-B OUTLET depth by 0.06' @ 12.10 hrs
[62] Hint: Exceeded Reach DCB-C OUTLET depth by 0.10' @ 12.10 hrs

Inflow Area = 0.295 ac, 64.06% Impervious, Inflow Depth = 2.95" for 10-Year event
Inflow = 0.96 cfs @ 12.08 hrs, Volume= 0.073 af
Outflow = 0.90 cfs @ 12.12 hrs, Volume= 0.073 af, Atten= 6%, Lag= 2.5 min

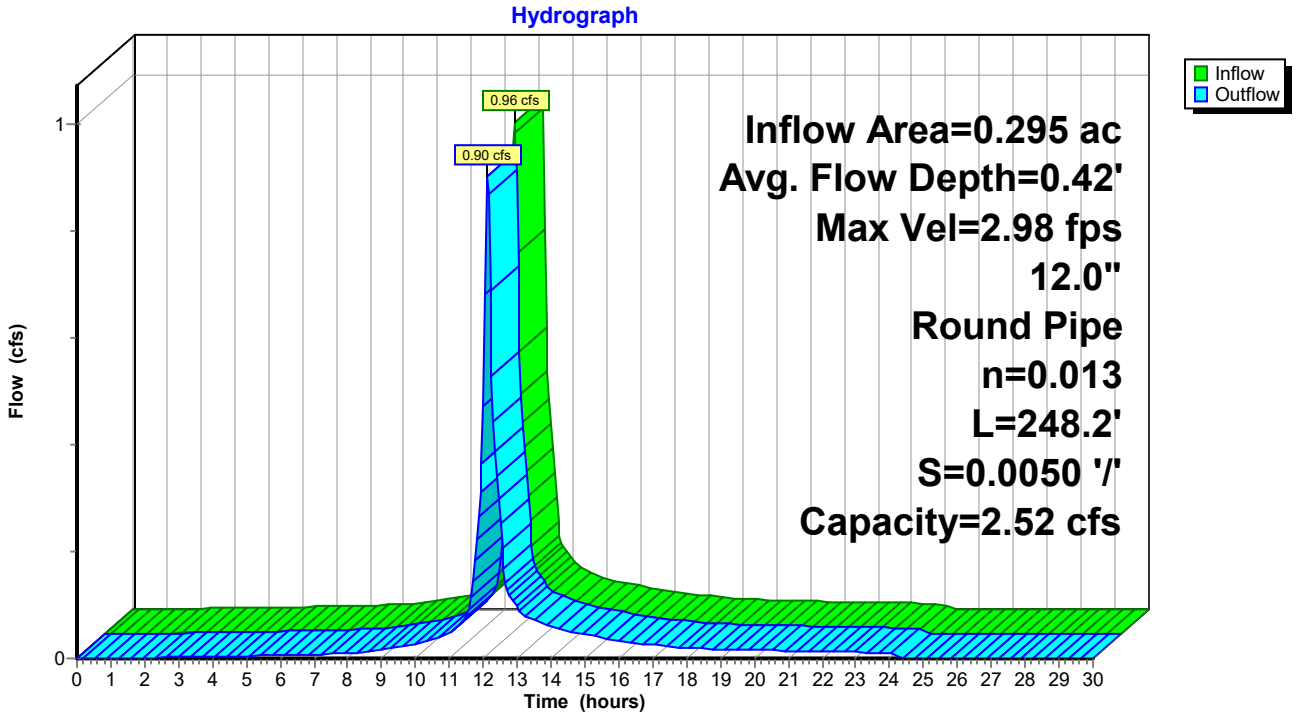
Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.98 fps, Min. Travel Time= 1.4 min
Avg. Velocity = 0.93 fps, Avg. Travel Time= 4.5 min

Peak Storage= 79 cf @ 12.10 hrs
Average Depth at Peak Storage= 0.42'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.52 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 248.2' Slope= 0.0050 '/'
Inlet Invert= 902.39', Outlet Invert= 901.15'



Reach DMH-A: TO DMH-D



Summary for Reach DMH-B: TO DMH-C

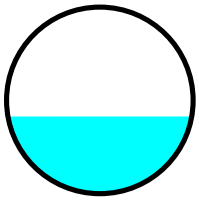
[52] Hint: Inlet/Outlet conditions not evaluated

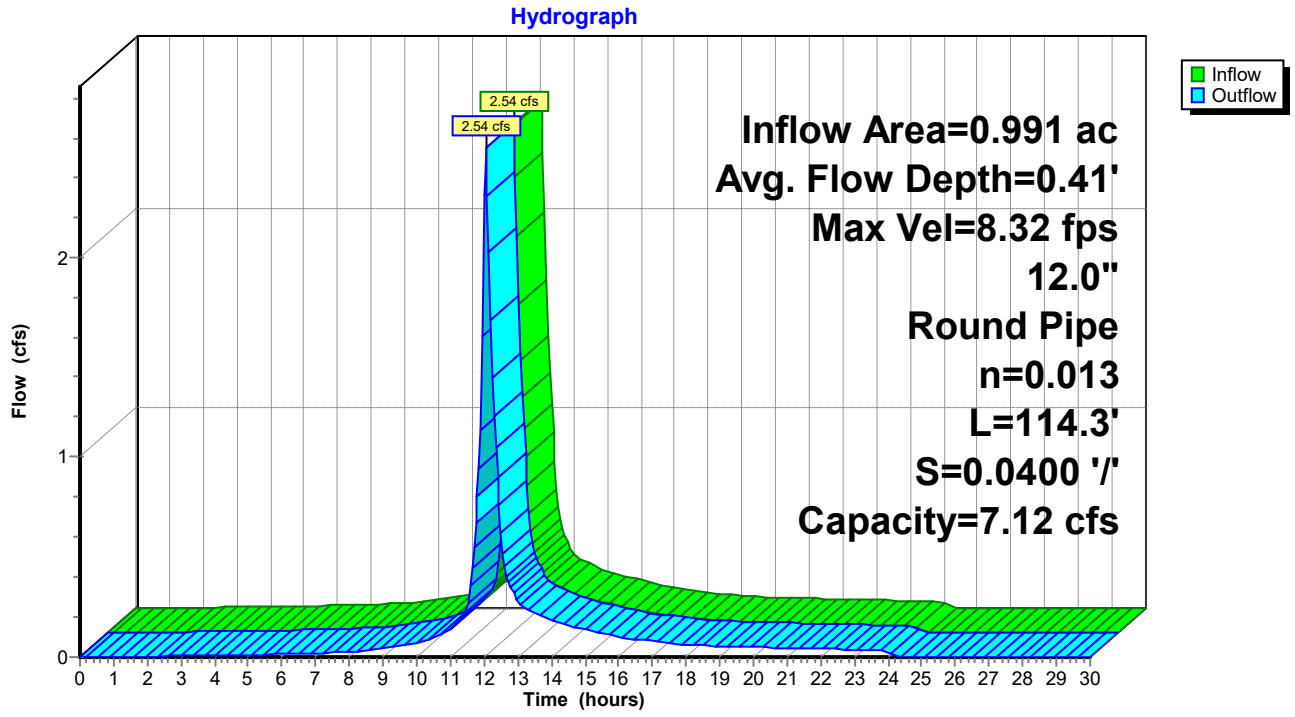
Inflow Area = 0.991 ac, 58.24% Impervious, Inflow Depth = 2.66" for 10-Year event
Inflow = 2.54 cfs @ 12.04 hrs, Volume= 0.220 af
Outflow = 2.54 cfs @ 12.05 hrs, Volume= 0.220 af, Atten= 0%, Lag= 0.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.32 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 2.66 fps, Avg. Travel Time= 0.7 min

Peak Storage= 35 cf @ 12.05 hrs
Average Depth at Peak Storage= 0.41'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 7.12 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 114.3' Slope= 0.0400 '/'
Inlet Invert= 894.99', Outlet Invert= 890.42'





Summary for Reach DMH-C: TO S. BASIN

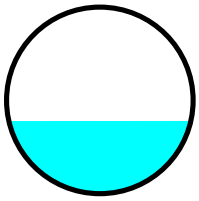
[52] Hint: Inlet/Outlet conditions not evaluated

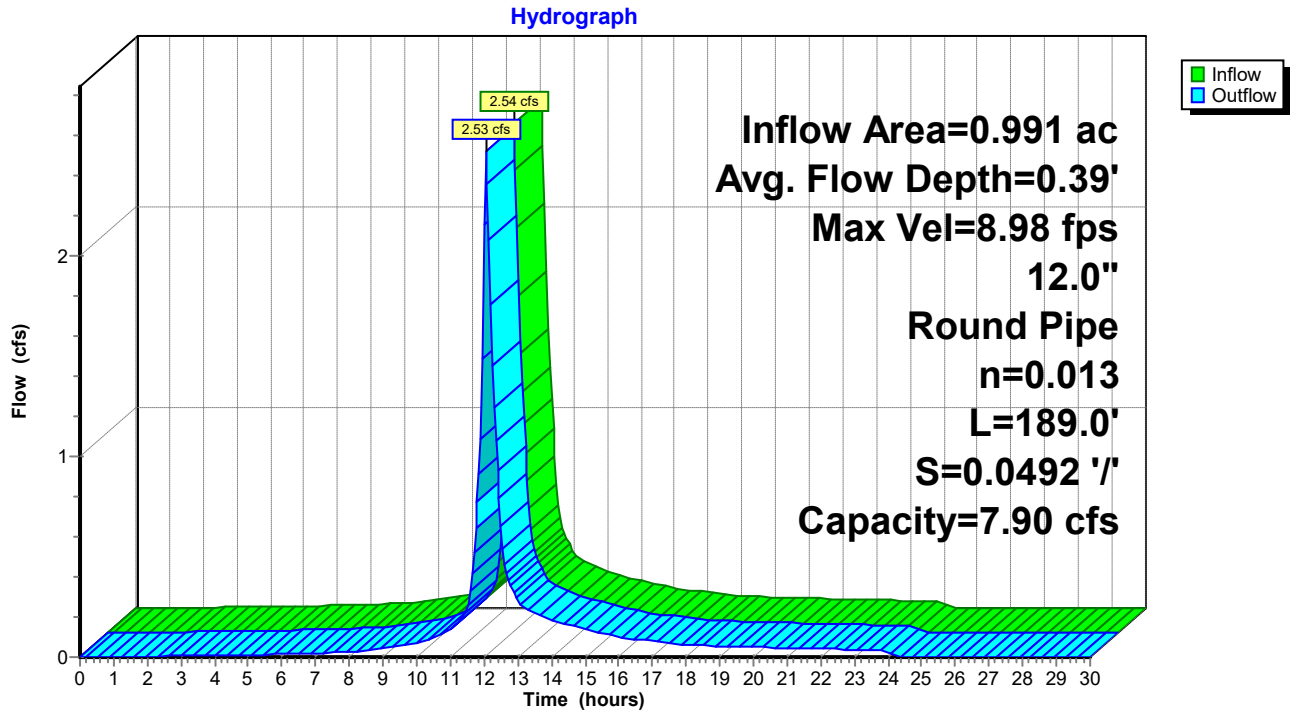
Inflow Area = 0.991 ac, 58.24% Impervious, Inflow Depth = 2.66" for 10-Year event
Inflow = 2.54 cfs @ 12.05 hrs, Volume= 0.220 af
Outflow = 2.53 cfs @ 12.06 hrs, Volume= 0.220 af, Atten= 1%, Lag= 0.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.98 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 2.86 fps, Avg. Travel Time= 1.1 min

Peak Storage= 54 cf @ 12.05 hrs
Average Depth at Peak Storage= 0.39'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 7.90 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 189.0' Slope= 0.0492 '/'
Inlet Invert= 888.30', Outlet Invert= 879.00'





Summary for Reach DMH-D: TO DMH-B

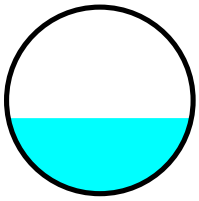
[52] Hint: Inlet/Outlet conditions not evaluated

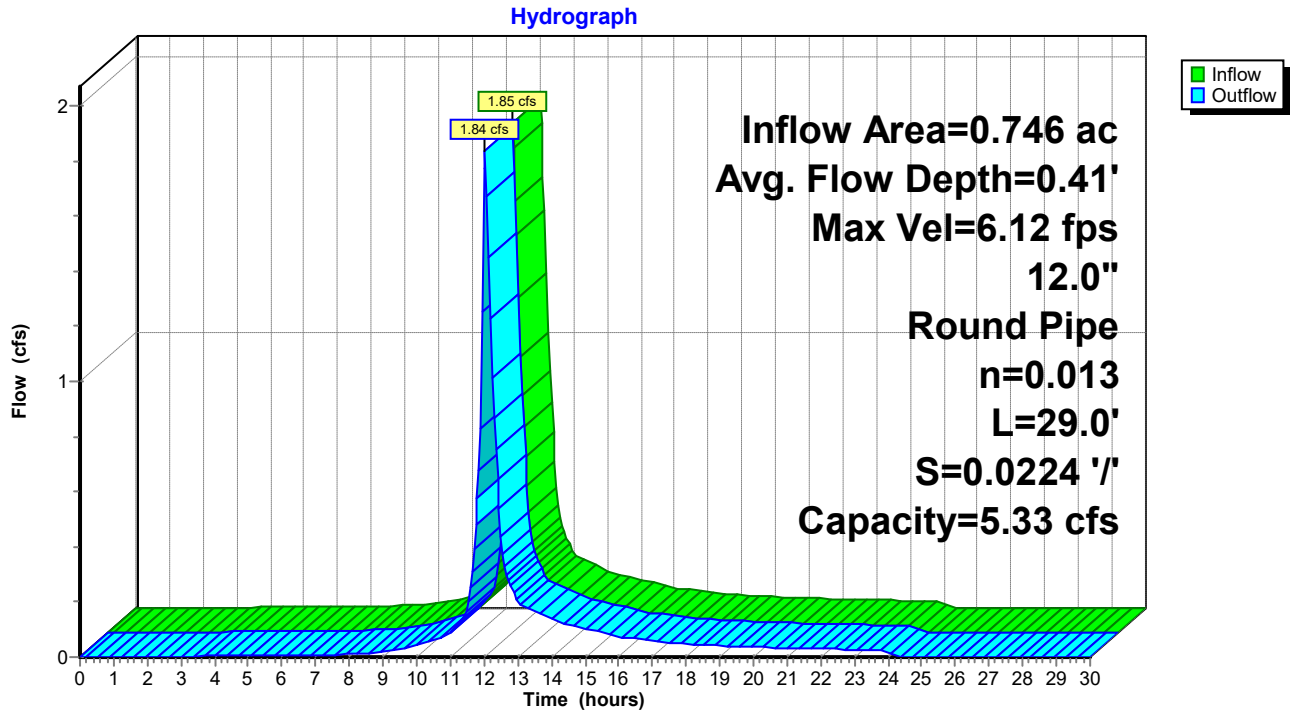
Inflow Area = 0.746 ac, 51.38% Impervious, Inflow Depth = 2.50" for 10-Year event
Inflow = 1.85 cfs @ 12.02 hrs, Volume= 0.155 af
Outflow = 1.84 cfs @ 12.02 hrs, Volume= 0.155 af, Atten= 1%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.12 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.90 fps, Avg. Travel Time= 0.3 min

Peak Storage= 9 cf @ 12.02 hrs
Average Depth at Peak Storage= 0.41'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 5.33 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 29.0' Slope= 0.0224 '/'
Inlet Invert= 900.38', Outlet Invert= 899.73'





Summary for Reach DMH1: TO DMH#2

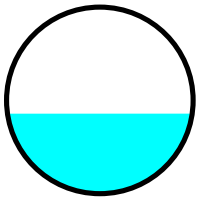
[52] Hint: Inlet/Outlet conditions not evaluated
[61] Hint: Exceeded Reach DCB1 outlet invert by 0.23' @ 12.10 hrs
[61] Hint: Exceeded Reach DCB2 outlet invert by 0.23' @ 12.10 hrs

Inflow Area = 0.678 ac, 30.87% Impervious, Inflow Depth = 1.85" for 10-Year event
Inflow = 1.39 cfs @ 12.10 hrs, Volume= 0.105 af
Outflow = 1.33 cfs @ 12.12 hrs, Volume= 0.105 af, Atten= 4%, Lag= 1.5 min

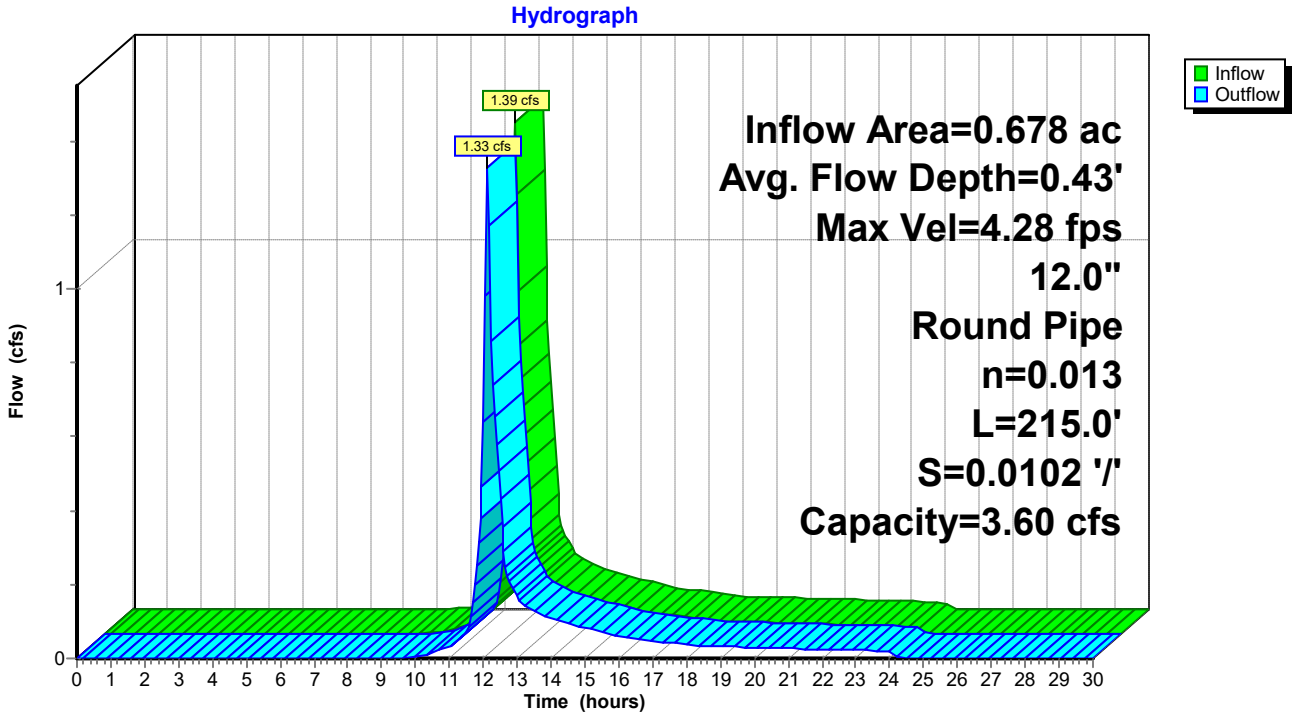
Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.28 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 1.58 fps, Avg. Travel Time= 2.3 min

Peak Storage= 69 cf @ 12.11 hrs
Average Depth at Peak Storage= 0.43'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.60 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 215.0' Slope= 0.0102 '/'
Inlet Invert= 896.20', Outlet Invert= 894.00'



Reach DMH1: TO DMH#2



Summary for Reach DMH2: TO D.BASIN#13

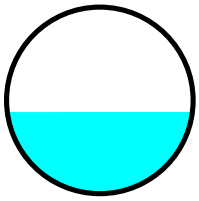
[52] Hint: Inlet/Outlet conditions not evaluated
[61] Hint: Exceeded Reach DMH1 outlet invert by 0.34' @ 12.15 hrs

Inflow Area = 0.678 ac, 30.87% Impervious, Inflow Depth = 1.85" for 10-Year event
Inflow = 1.33 cfs @ 12.12 hrs, Volume= 0.105 af
Outflow = 1.29 cfs @ 12.16 hrs, Volume= 0.105 af, Atten= 3%, Lag= 1.9 min

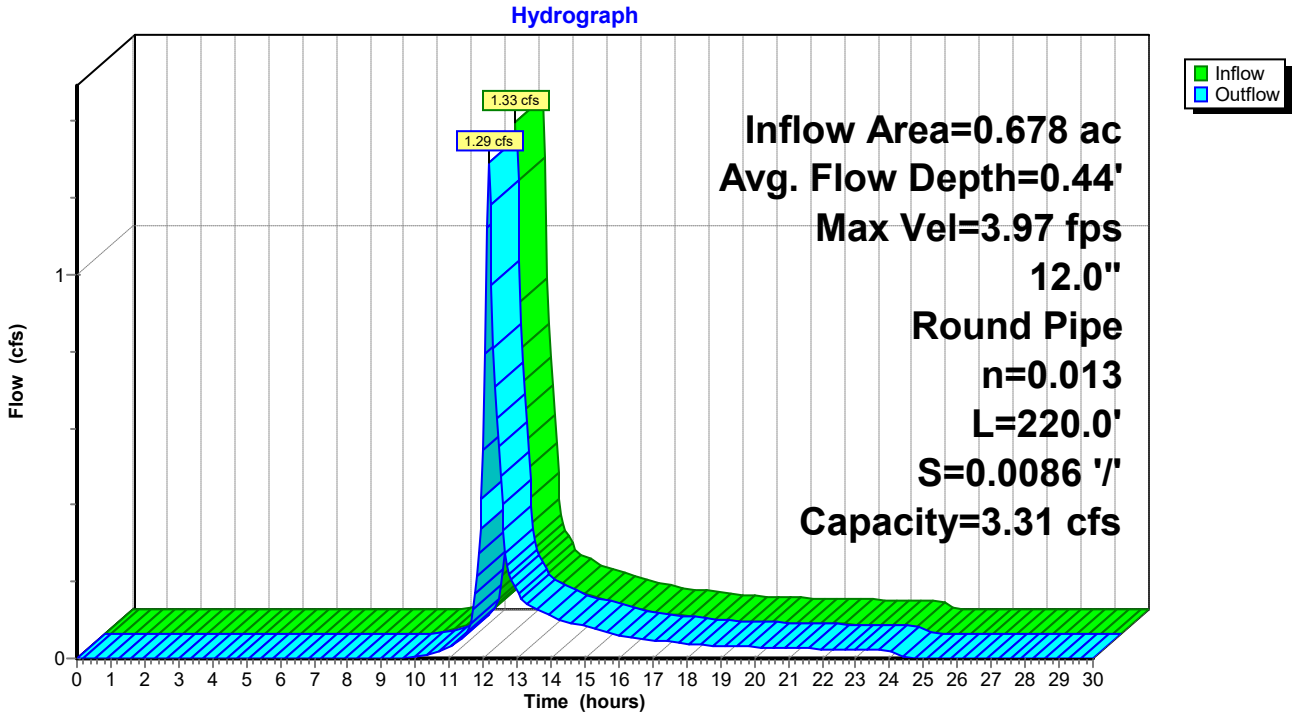
Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.97 fps, Min. Travel Time= 0.9 min
Avg. Velocity = 1.48 fps, Avg. Travel Time= 2.5 min

Peak Storage= 73 cf @ 12.14 hrs
Average Depth at Peak Storage= 0.44'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.31 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 220.0' Slope= 0.0086 '/'
Inlet Invert= 893.90', Outlet Invert= 892.00'



Reach DMH2: TO D.BASIN#13



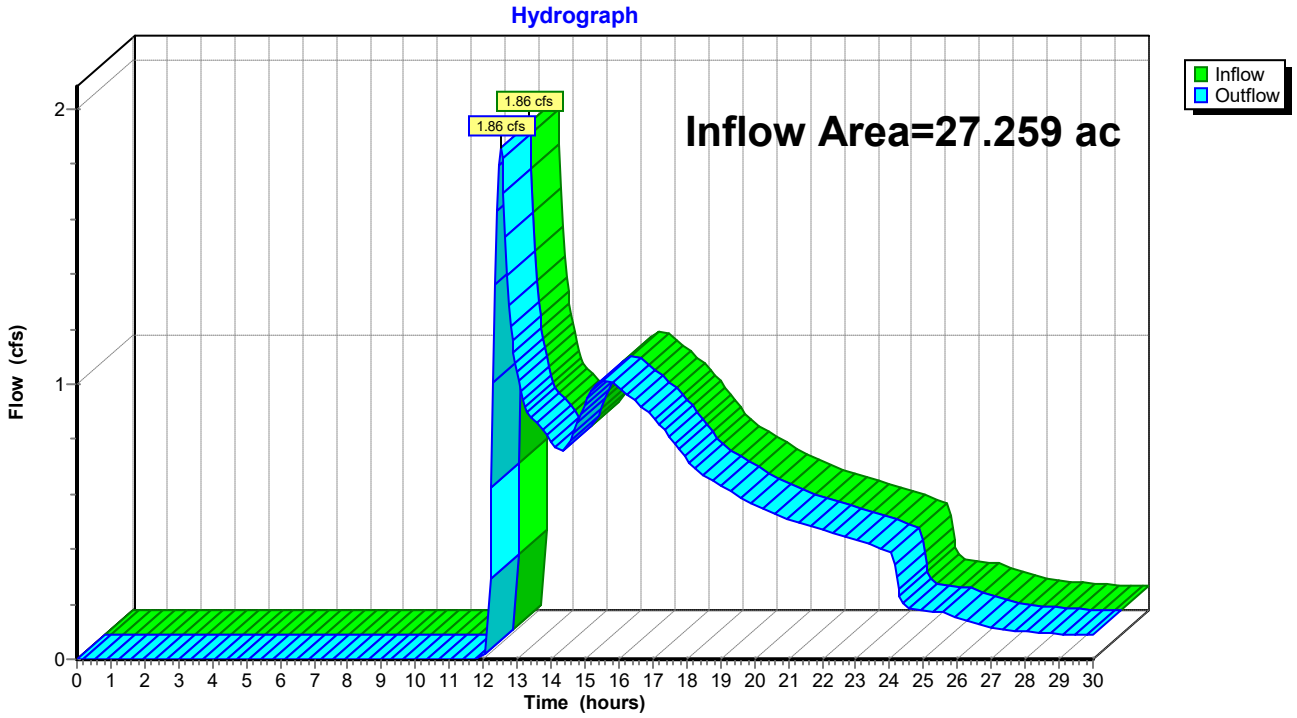
Summary for Reach DP1: DP#1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 27.259 ac, 0.48% Impervious, Inflow Depth > 0.35" for 10-Year event
Inflow = 1.86 cfs @ 12.51 hrs, Volume= 0.785 af
Outflow = 1.86 cfs @ 12.51 hrs, Volume= 0.785 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP1: DP#1



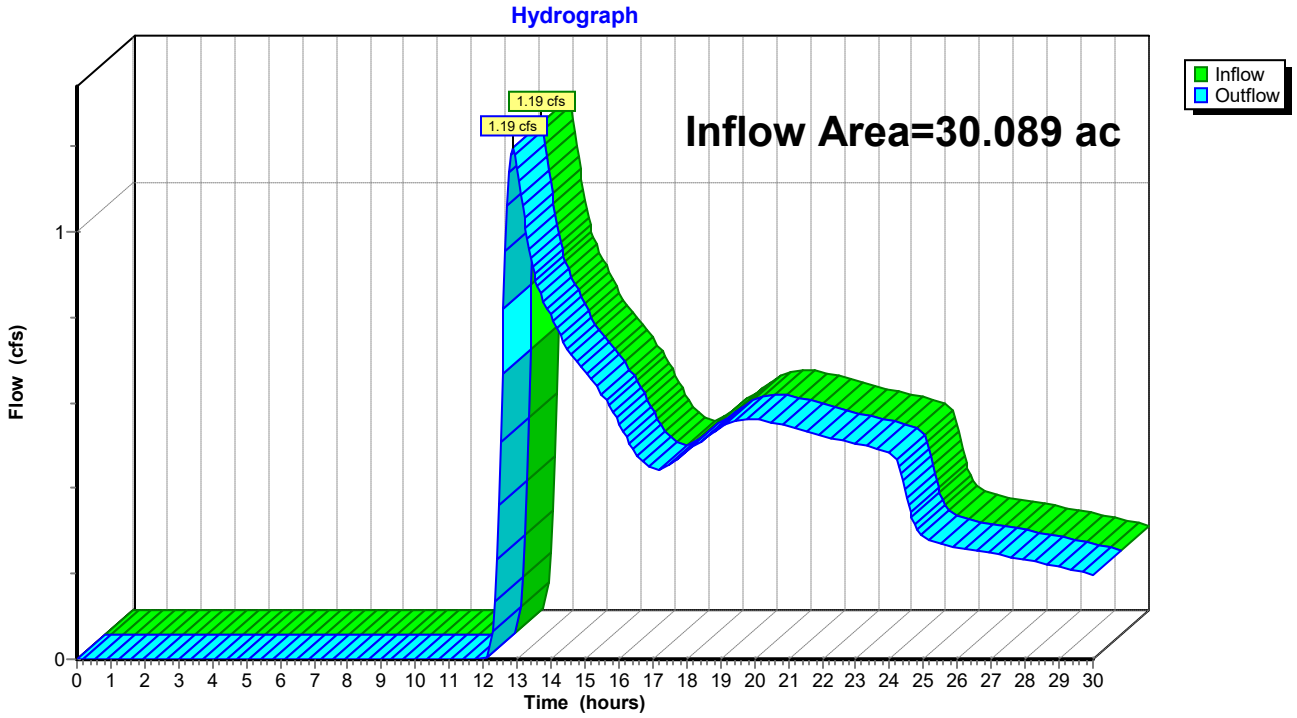
Summary for Reach DP12: DP12

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 30.089 ac, 0.70% Impervious, Inflow Depth > 0.28" for 10-Year event
Inflow = 1.19 cfs @ 12.86 hrs, Volume= 0.705 af
Outflow = 1.19 cfs @ 12.86 hrs, Volume= 0.705 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP12: DP12



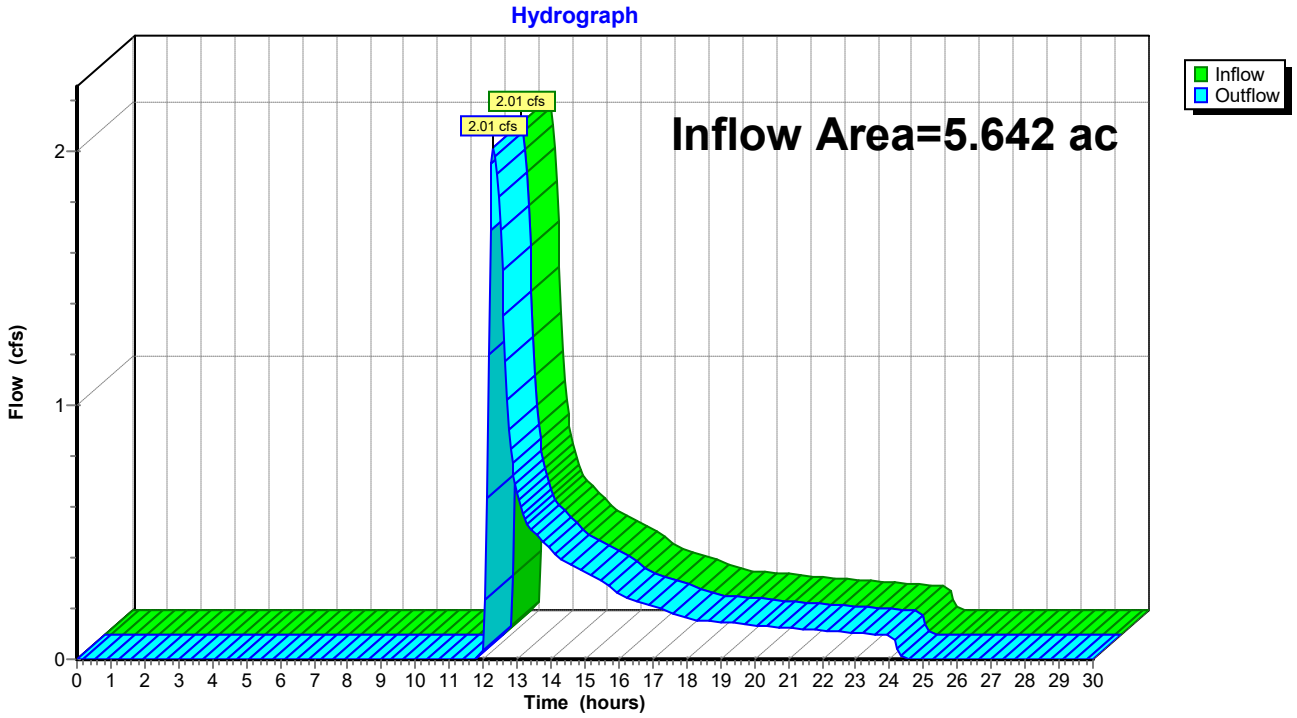
Summary for Reach DP13: DP131

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 5.642 ac, 0.00% Impervious, Inflow Depth = 0.63" for 10-Year event
Inflow = 2.01 cfs @ 12.31 hrs, Volume= 0.298 af
Outflow = 2.01 cfs @ 12.31 hrs, Volume= 0.298 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP13: DP131



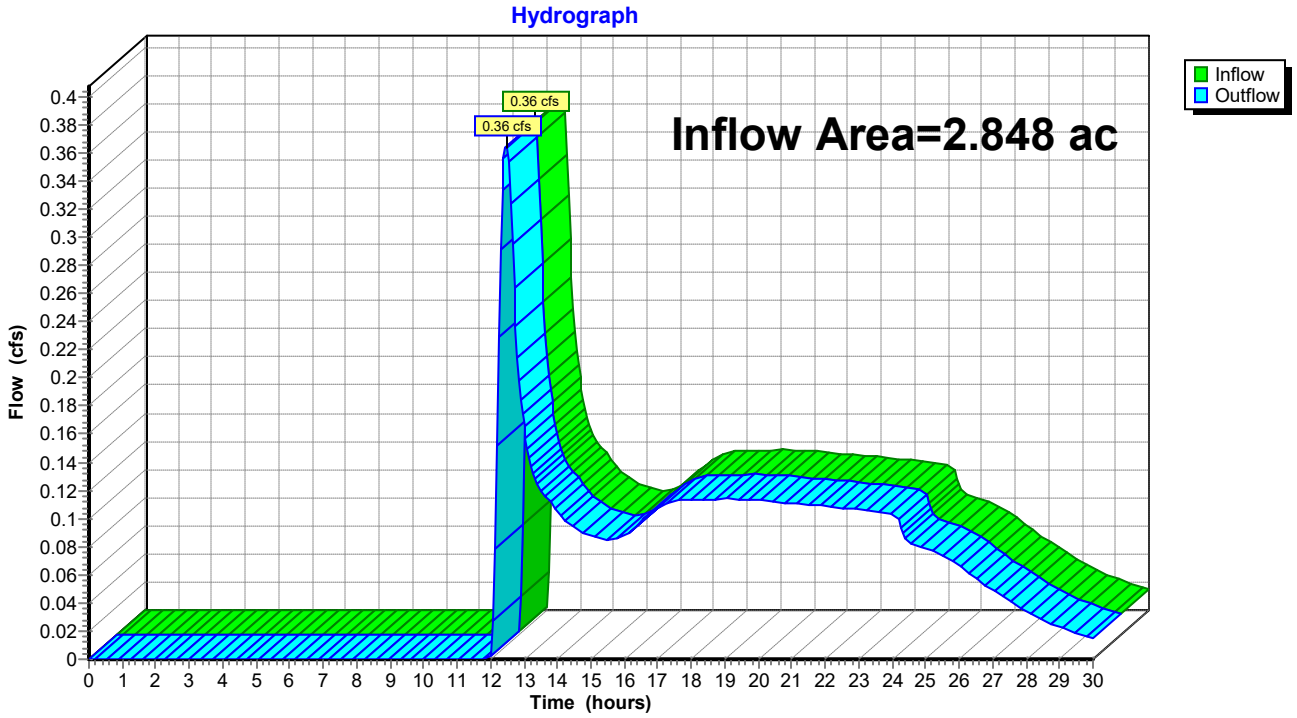
Summary for Reach DP14: DP14

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 2.848 ac, 0.00% Impervious, Inflow Depth > 0.59" for 10-Year event
Inflow = 0.36 cfs @ 12.46 hrs, Volume= 0.141 af
Outflow = 0.36 cfs @ 12.46 hrs, Volume= 0.141 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP14: DP14



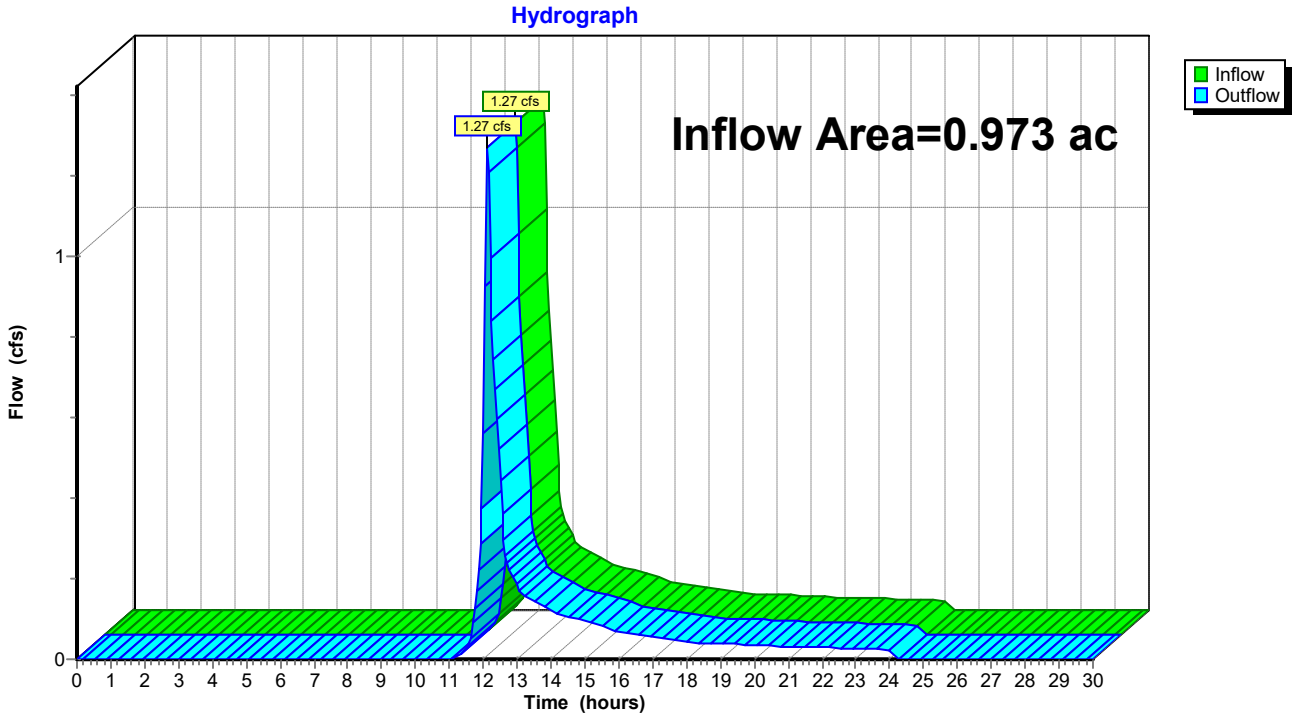
Summary for Reach DP15: DP15

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.973 ac, 10.17% Impervious, Inflow Depth = 1.29" for 10-Year event
Inflow = 1.27 cfs @ 12.12 hrs, Volume= 0.105 af
Outflow = 1.27 cfs @ 12.12 hrs, Volume= 0.105 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP15: DP15



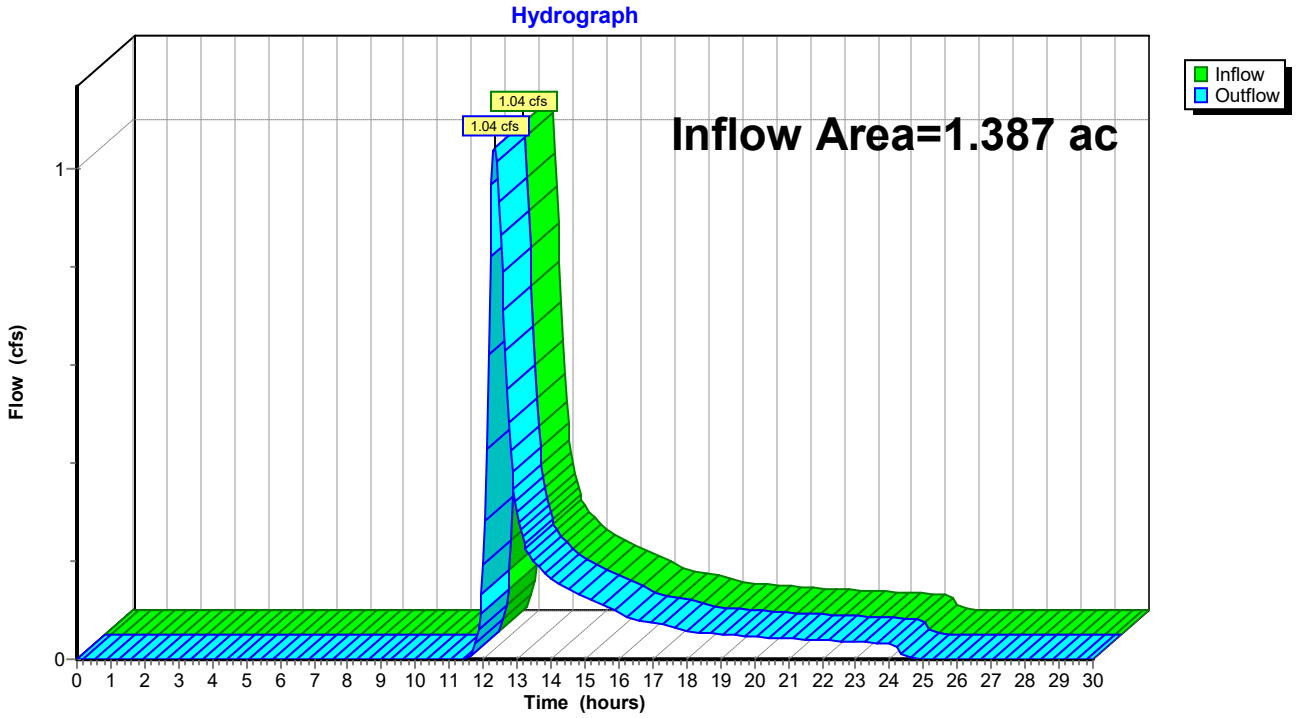
Summary for Reach DP16: DP16

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.387 ac, 10.83% Impervious, Inflow Depth = 1.10" for 10-Year event
Inflow = 1.04 cfs @ 12.33 hrs, Volume= 0.128 af
Outflow = 1.04 cfs @ 12.33 hrs, Volume= 0.128 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP16: DP16



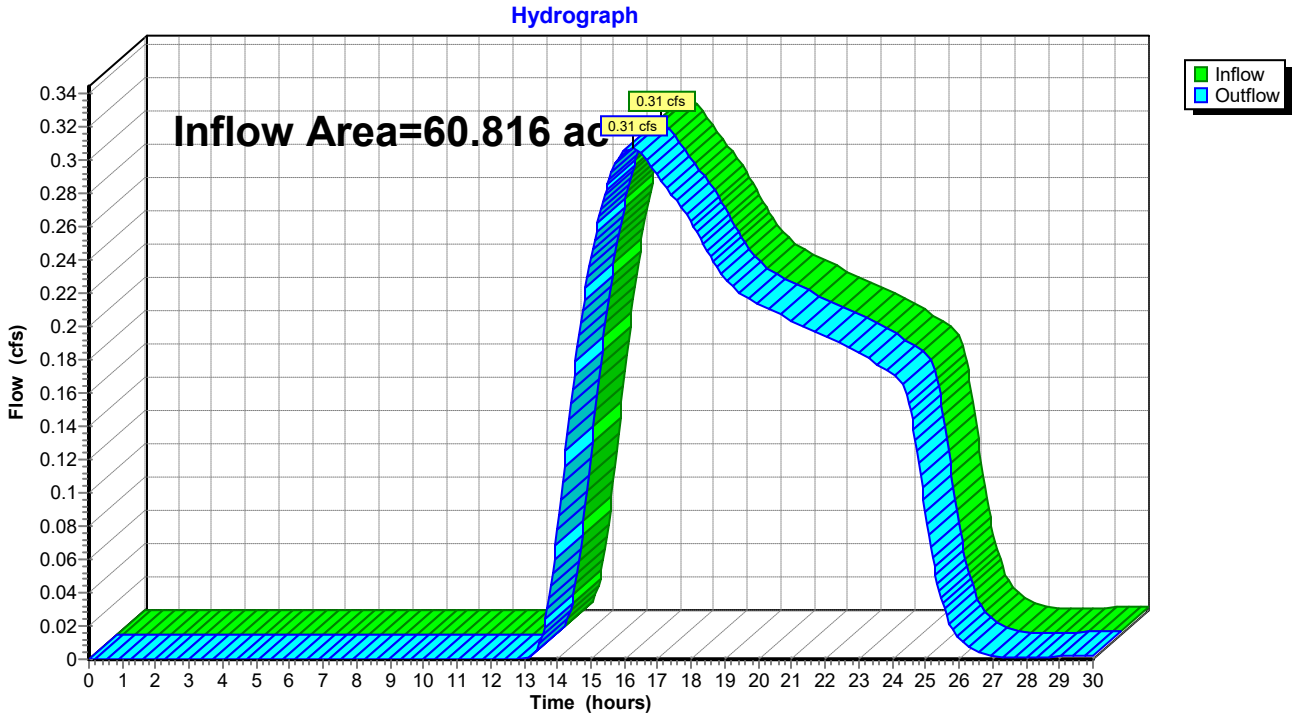
Summary for Reach DP2: DP#2

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 60.816 ac, 1.81% Impervious, Inflow Depth > 0.04" for 10-Year event
Inflow = 0.31 cfs @ 16.23 hrs, Volume= 0.205 af
Outflow = 0.31 cfs @ 16.23 hrs, Volume= 0.205 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP2: DP#2



Summary for Reach OL1: (new Reach)

[79] Warning: Submerged Pond DB11 Primary device # 2 OUTLET by 0.01'

Inflow Area = 17.764 ac, 1.27% Impervious, Inflow Depth > 0.07" for 10-Year event
Inflow = 0.08 cfs @ 14.35 hrs, Volume= 0.110 af
Outflow = 0.08 cfs @ 19.20 hrs, Volume= 0.109 af, Atten= 0%, Lag= 291.0 min

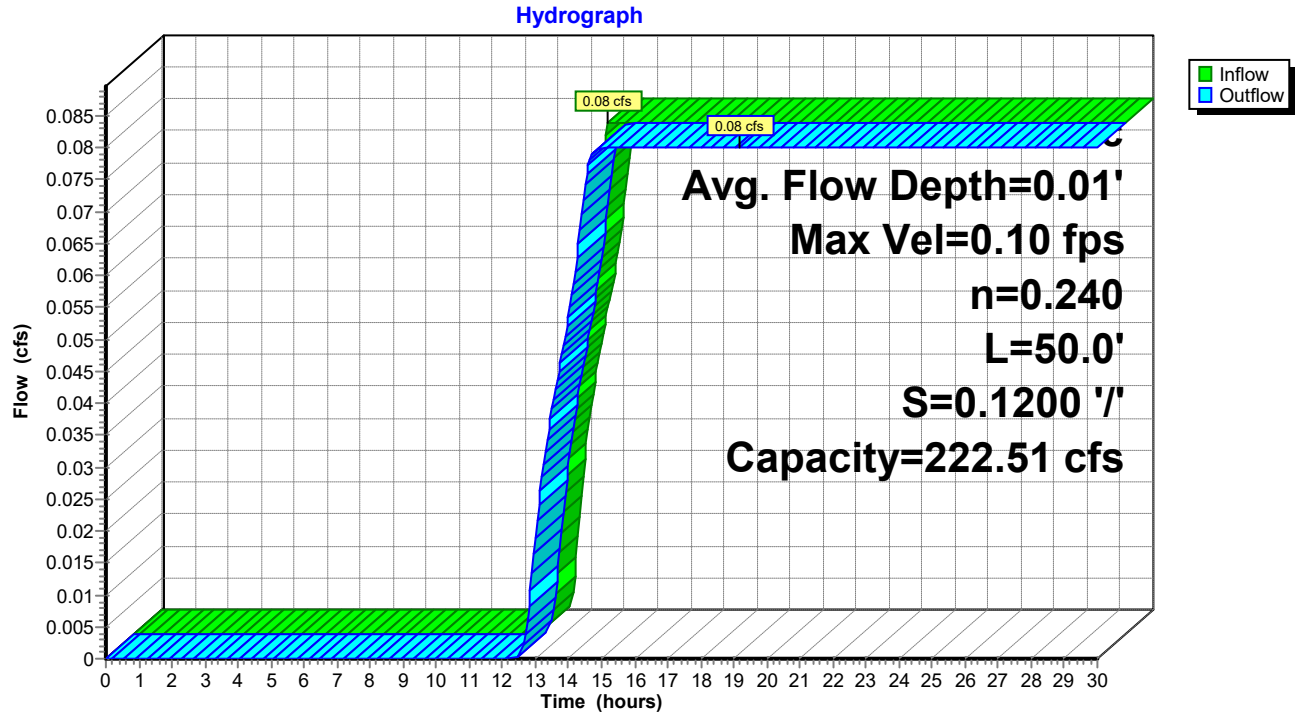
Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.10 fps, Min. Travel Time= 8.4 min
Avg. Velocity = 0.10 fps, Avg. Travel Time= 8.4 min

Peak Storage= 40 cf @ 19.00 hrs
Average Depth at Peak Storage= 0.01'
Bank-Full Depth= 1.00' Flow Area= 110.0 sf, Capacity= 222.51 cfs

100.00' x 1.00' deep channel, n= 0.240 Sheet flow over Dense Grass
Side Slope Z-value= 10.0 '/' Top Width= 120.00'
Length= 50.0' Slope= 0.1200 '/'
Inlet Invert= 878.00', Outlet Invert= 872.00'

‡

Reach OL1: (new Reach)



Summary for Reach OL121: WOODS-4

[79] Warning: Submerged Pond DB12 Primary device # 2 OUTLET by 0.01'

Inflow Area = 7.158 ac, 0.00% Impervious, Inflow Depth > 0.27" for 10-Year event
Inflow = 0.19 cfs @ 16.43 hrs, Volume= 0.161 af
Outflow = 0.19 cfs @ 16.66 hrs, Volume= 0.159 af, Atten= 0%, Lag= 13.9 min

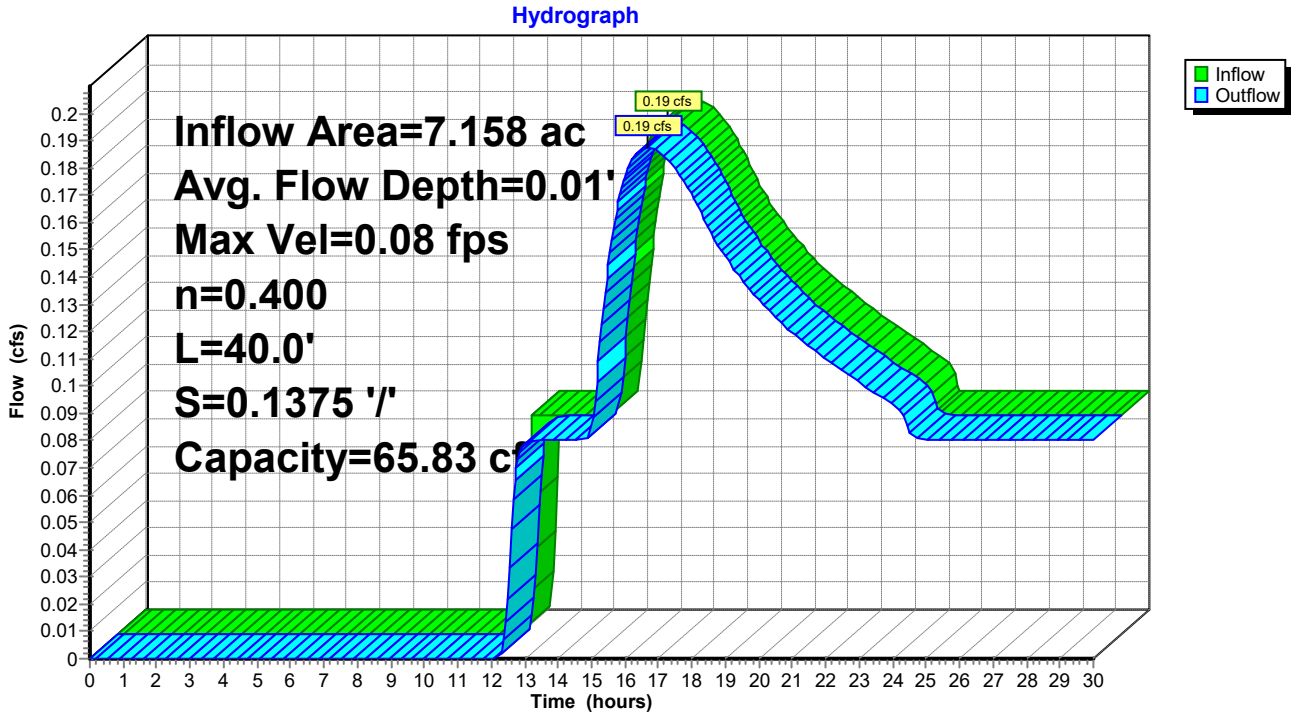
Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.08 fps, Min. Travel Time= 8.0 min
Avg. Velocity = 0.07 fps, Avg. Travel Time= 10.0 min

Peak Storage= 90 cf @ 16.52 hrs
Average Depth at Peak Storage= 0.01'
Bank-Full Depth= 0.50' Flow Area= 77.5 sf, Capacity= 65.83 cfs

150.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 160.00'
Length= 40.0' Slope= 0.1375 '/'
Inlet Invert= 881.50', Outlet Invert= 876.00'

‡

Reach OL121: WOODS-4



Summary for Reach OL122: WOODS-4

[62] Hint: Exceeded Reach OL121 OUTLET depth by 0.02' @ 19.60 hrs

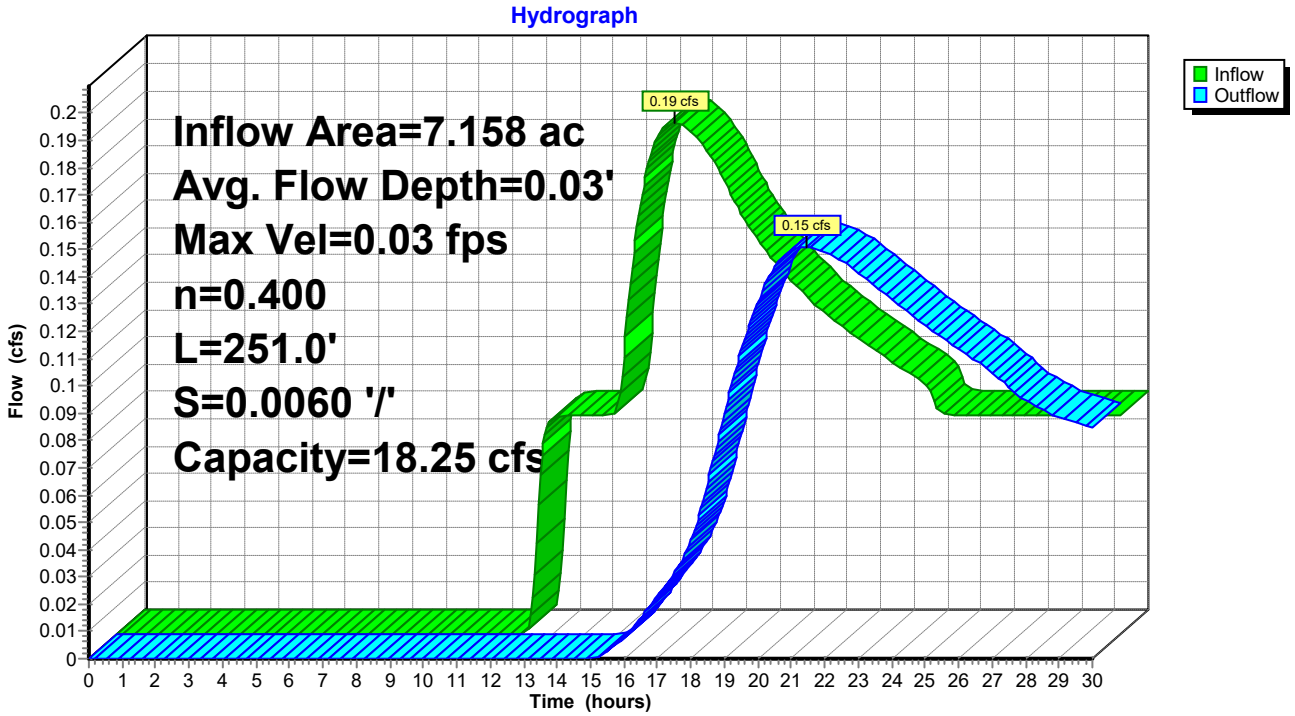
Inflow Area = 7.158 ac, 0.00% Impervious, Inflow Depth > 0.27" for 10-Year event
Inflow = 0.19 cfs @ 16.66 hrs, Volume= 0.159 af
Outflow = 0.15 cfs @ 21.43 hrs, Volume= 0.119 af, Atten= 19%, Lag= 286.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.03 fps, Min. Travel Time= 156.6 min
Avg. Velocity = 0.02 fps, Avg. Travel Time= 197.6 min

Peak Storage= 1,419 cf @ 18.82 hrs
Average Depth at Peak Storage= 0.03'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 18.25 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 251.0' Slope= 0.0060 '/'
Inlet Invert= 876.00', Outlet Invert= 874.50'

Reach OL122: WOODS-4



Summary for Reach OL123: GRASS

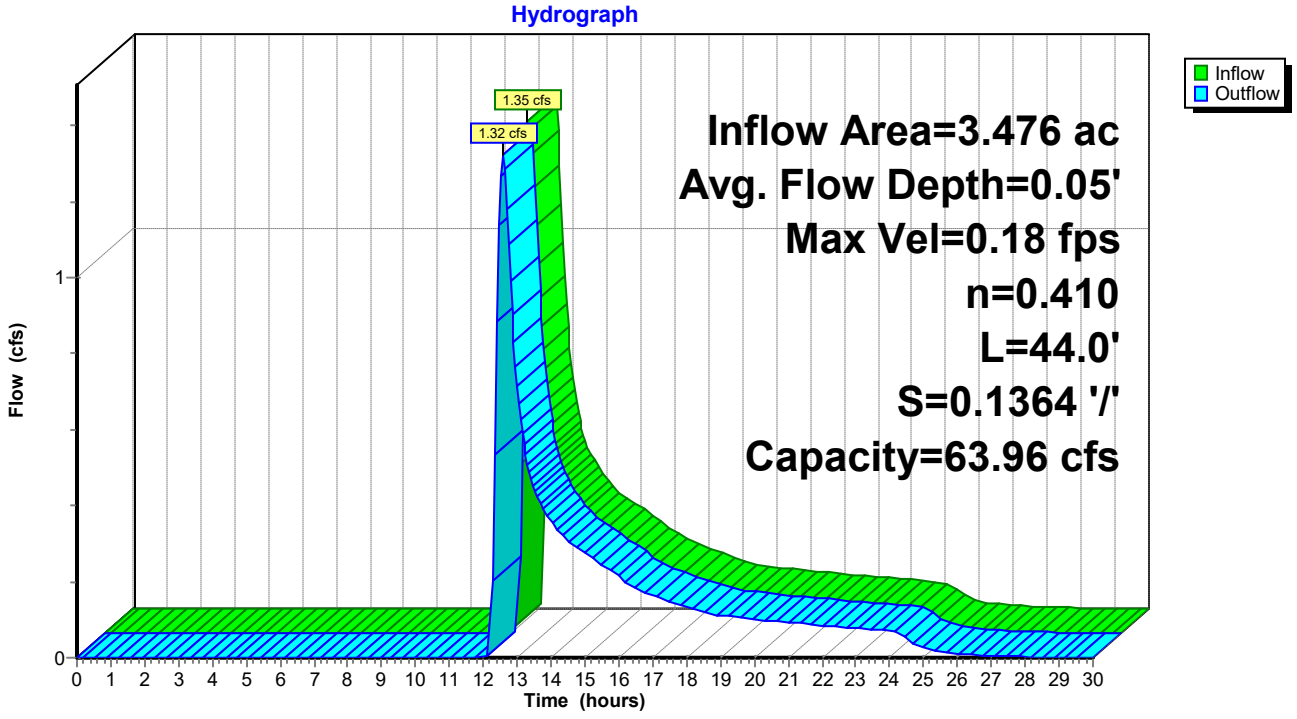
Inflow Area = 3.476 ac, 6.03% Impervious, Inflow Depth > 0.77" for 10-Year event
Inflow = 1.35 cfs @ 12.45 hrs, Volume= 0.224 af
Outflow = 1.32 cfs @ 12.57 hrs, Volume= 0.224 af, Atten= 2%, Lag= 7.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.18 fps, Min. Travel Time= 4.1 min
Avg. Velocity = 0.07 fps, Avg. Travel Time= 10.8 min

Peak Storage= 325 cf @ 12.50 hrs
Average Depth at Peak Storage= 0.05'
Bank-Full Depth= 0.50' Flow Area= 77.5 sf, Capacity= 63.96 cfs

150.00' x 0.50' deep channel, n= 0.410 Sheet flow over Bermuda Grass
Side Slope Z-value= 10.0 '/' Top Width= 160.00'
Length= 44.0' Slope= 0.1364 '/'
Inlet Invert= 887.00', Outlet Invert= 881.00'

Reach OL123: GRASS



Summary for Reach OL124: WOODS-4

[62] Hint: Exceeded Reach OL123 OUTLET depth by 0.01' @ 12.80 hrs

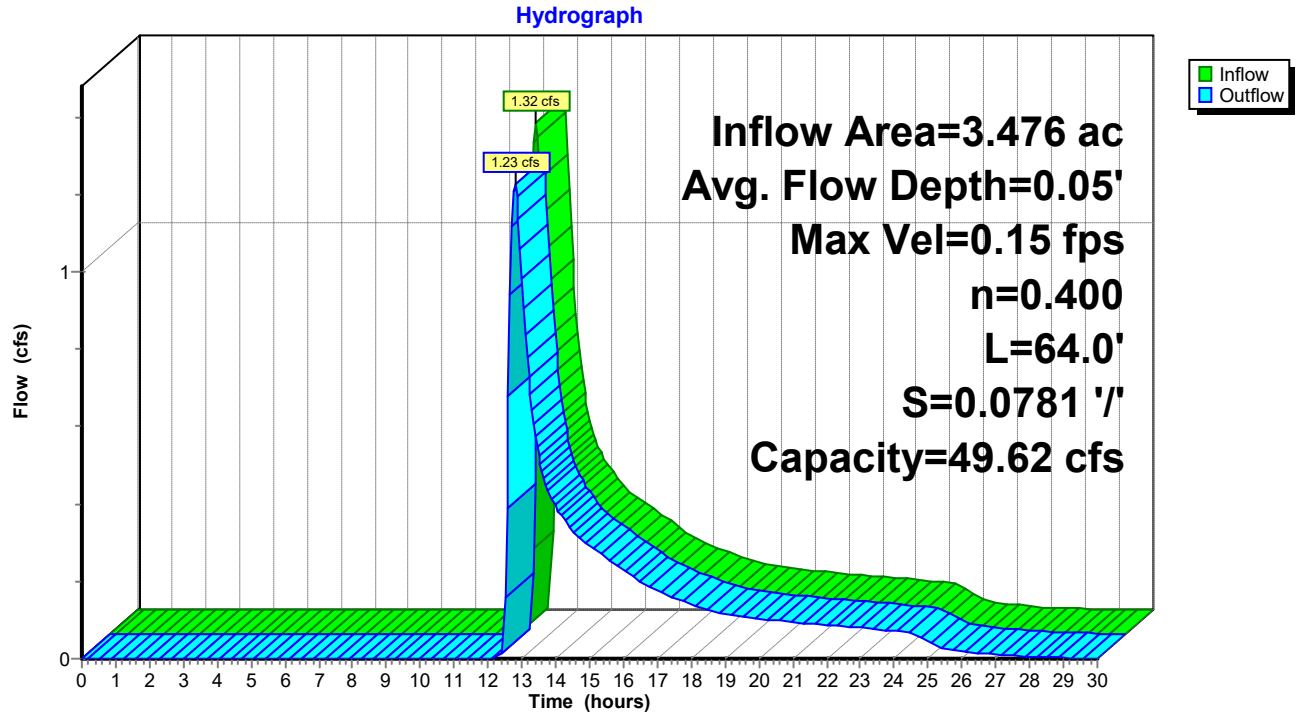
Inflow Area = 3.476 ac, 6.03% Impervious, Inflow Depth > 0.77" for 10-Year event
Inflow = 1.32 cfs @ 12.57 hrs, Volume= 0.224 af
Outflow = 1.23 cfs @ 12.79 hrs, Volume= 0.224 af, Atten= 7%, Lag= 13.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.15 fps, Min. Travel Time= 7.1 min
Avg. Velocity = 0.06 fps, Avg. Travel Time= 18.6 min

Peak Storage= 528 cf @ 12.67 hrs
Average Depth at Peak Storage= 0.05'
Bank-Full Depth= 0.50' Flow Area= 77.5 sf, Capacity= 49.62 cfs

150.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 160.00'
Length= 64.0' Slope= 0.0781 '/'
Inlet Invert= 881.00', Outlet Invert= 876.00'

Reach OL124: WOODS-4



Summary for Reach OL125: WOODS-4

[62] Hint: Exceeded Reach OL122 OUTLET depth by 0.02' @ 15.95 hrs
[62] Hint: Exceeded Reach OL126 OUTLET depth by 0.02' @ 27.30 hrs

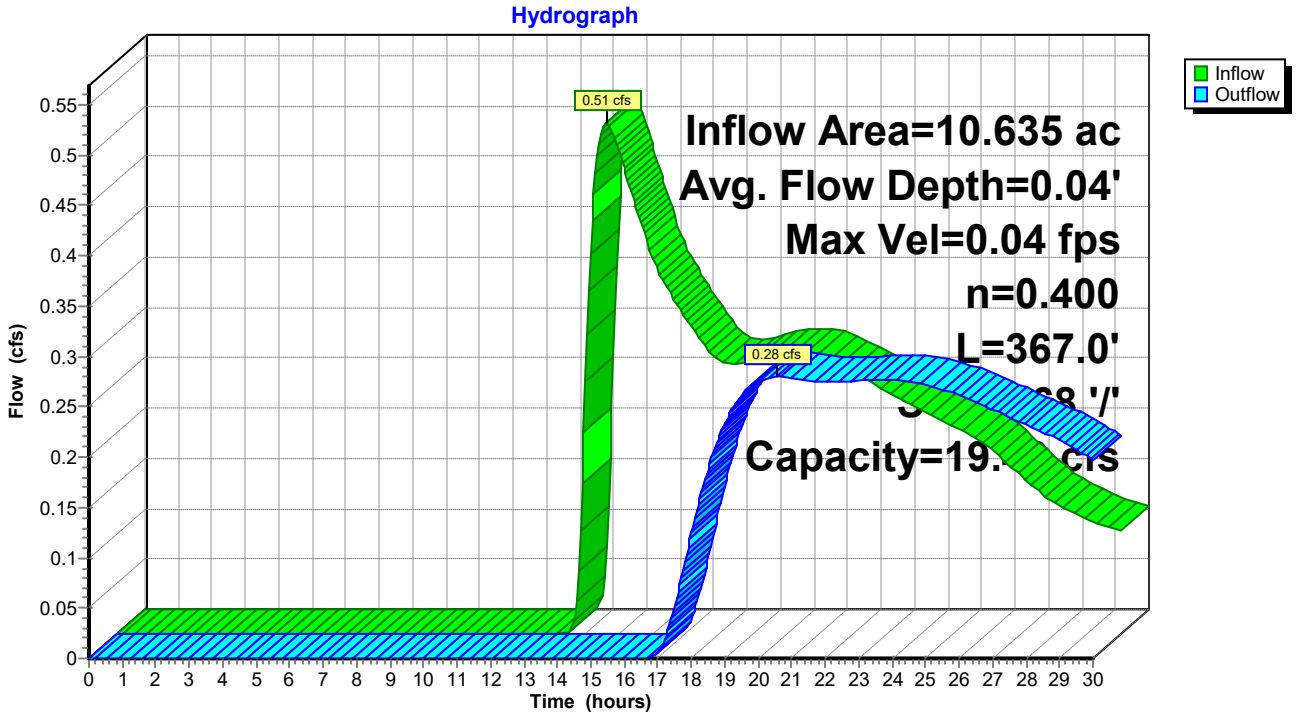
Inflow Area = 10.635 ac, 1.97% Impervious, Inflow Depth > 0.38" for 10-Year event
Inflow = 0.51 cfs @ 14.62 hrs, Volume= 0.337 af
Outflow = 0.28 cfs @ 20.59 hrs, Volume= 0.254 af, Atten= 45%, Lag= 357.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.04 fps, Min. Travel Time= 172.5 min
Avg. Velocity = 0.03 fps, Avg. Travel Time= 196.5 min

Peak Storage= 2,894 cf @ 17.71 hrs
Average Depth at Peak Storage= 0.04'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 19.48 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 367.0' Slope= 0.0068 '/'
Inlet Invert= 874.50', Outlet Invert= 872.00'

Reach OL125: WOODS-4



Summary for Reach OL126: WOODS-4

[62] Hint: Exceeded Reach OL124 OUTLET depth by 0.02' @ 13.85 hrs

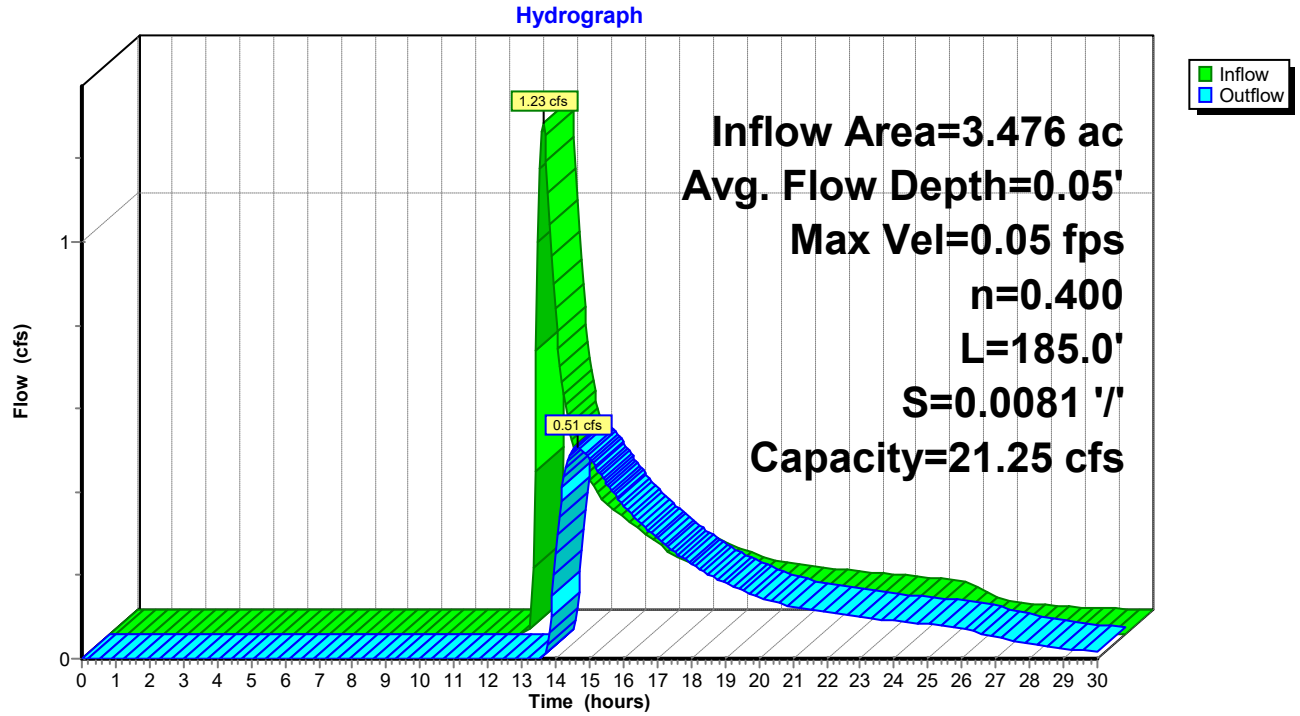
Inflow Area = 3.476 ac, 6.03% Impervious, Inflow Depth > 0.77" for 10-Year event
Inflow = 1.23 cfs @ 12.79 hrs, Volume= 0.224 af
Outflow = 0.51 cfs @ 14.62 hrs, Volume= 0.218 af, Atten= 59%, Lag= 109.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.05 fps, Min. Travel Time= 65.0 min
Avg. Velocity = 0.03 fps, Avg. Travel Time= 116.1 min

Peak Storage= 1,982 cf @ 13.54 hrs
Average Depth at Peak Storage= 0.05'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 21.25 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 185.0' Slope= 0.0081 '/'
Inlet Invert= 876.00', Outlet Invert= 874.50'

Reach OL126: WOODS-4



Summary for Reach OL141: WOODS

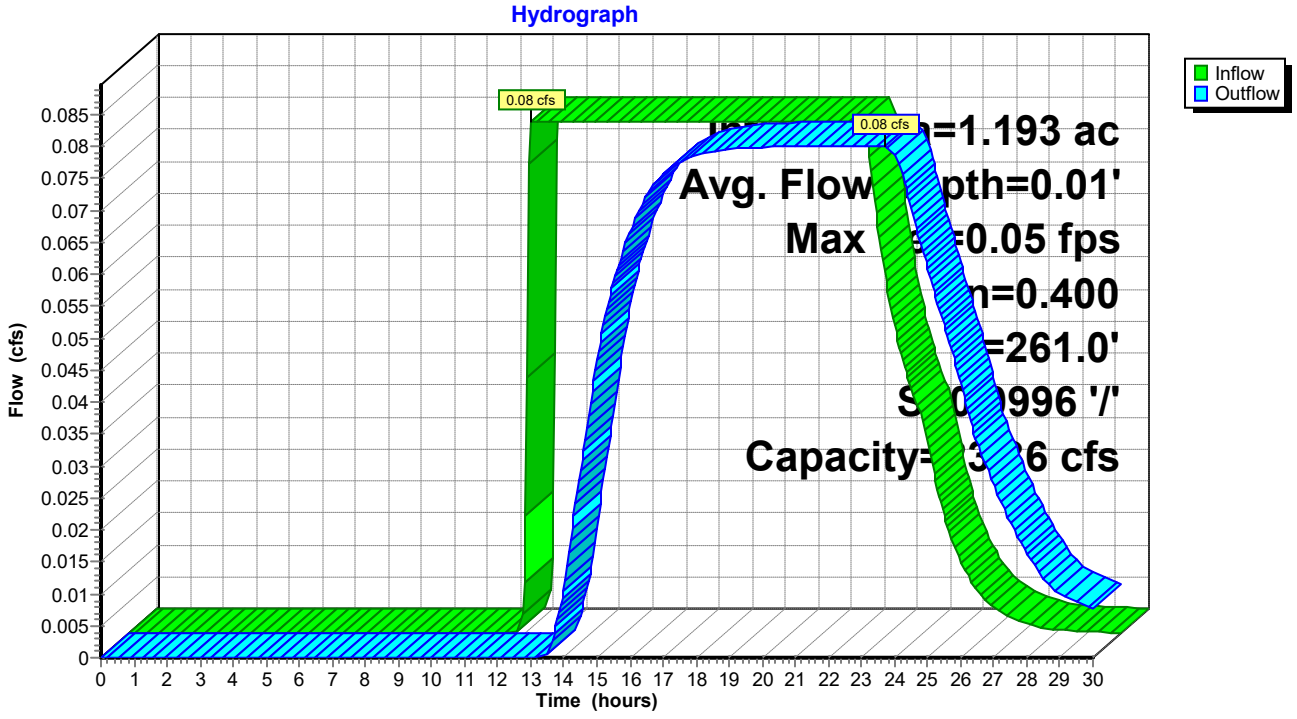
Inflow Area = 1.193 ac, 0.00% Impervious, Inflow Depth > 0.78" for 10-Year event
Inflow = 0.08 cfs @ 12.15 hrs, Volume= 0.078 af
Outflow = 0.08 cfs @ 23.70 hrs, Volume= 0.076 af, Atten= 0%, Lag= 693.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.05 fps, Min. Travel Time= 89.9 min
Avg. Velocity = 0.04 fps, Avg. Travel Time= 112.8 min

Peak Storage= 431 cf @ 22.25 hrs
Average Depth at Peak Storage= 0.01'
Bank-Full Depth= 0.25' Flow Area= 50.6 sf, Capacity= 23.36 cfs

200.00' x 0.25' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 205.00'
Length= 261.0' Slope= 0.0996 '/'
Inlet Invert= 888.00', Outlet Invert= 862.00'

Reach OL141: WOODS



Summary for Reach OL142: WOODS

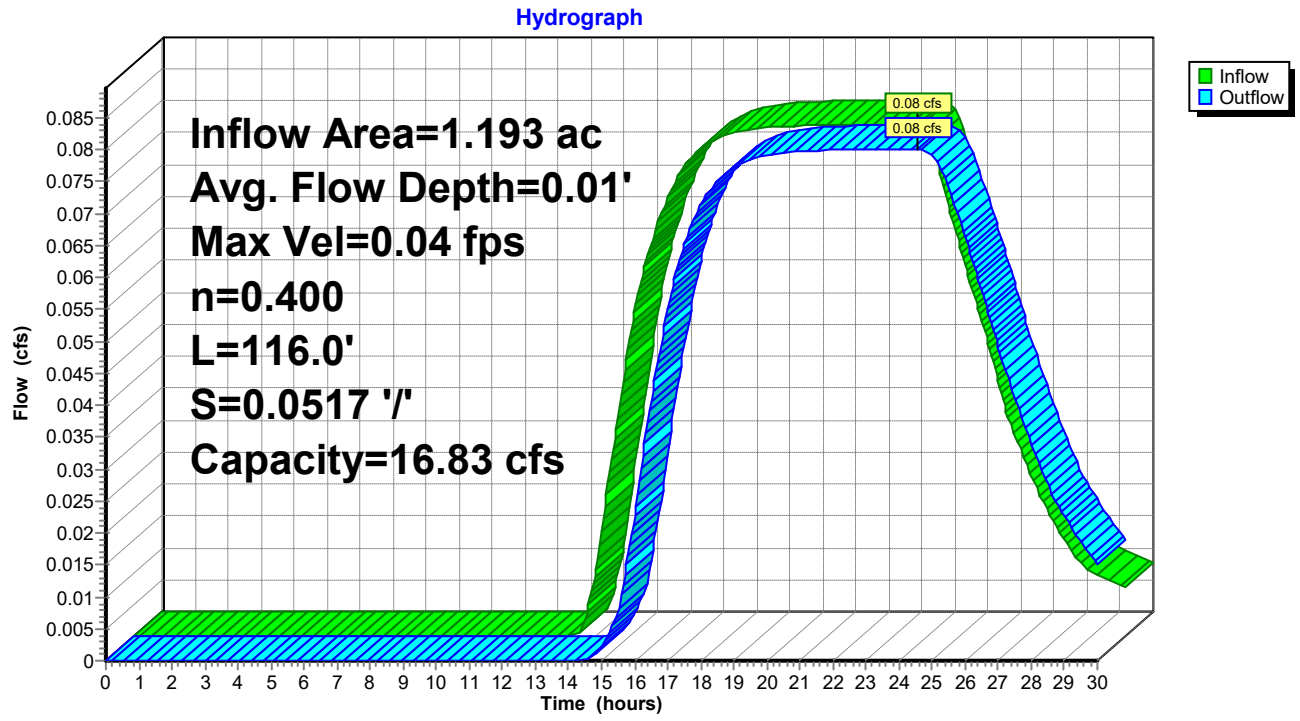
[61] Hint: Exceeded Reach OL141 outlet invert by 0.01' @ 23.75 hrs

Inflow Area = 1.193 ac, 0.00% Impervious, Inflow Depth > 0.76" for 10-Year event
Inflow = 0.08 cfs @ 23.70 hrs, Volume= 0.076 af
Outflow = 0.08 cfs @ 24.55 hrs, Volume= 0.073 af, Atten= 0%, Lag= 51.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.04 fps, Min. Travel Time= 48.9 min
Avg. Velocity = 0.03 fps, Avg. Travel Time= 59.3 min

Peak Storage= 235 cf @ 23.74 hrs
Average Depth at Peak Storage= 0.01'
Bank-Full Depth= 0.25' Flow Area= 50.6 sf, Capacity= 16.83 cfs

200.00' x 0.25' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 205.00'
Length= 116.0' Slope= 0.0517 '/'
Inlet Invert= 862.00', Outlet Invert= 856.00'



Summary for Reach SW1A: (new Reach)

Inflow Area = 2.547 ac, 0.00% Impervious, Inflow Depth = 0.38" for 10-Year event
Inflow = 0.40 cfs @ 12.40 hrs, Volume= 0.081 af
Outflow = 0.39 cfs @ 12.54 hrs, Volume= 0.081 af, Atten= 3%, Lag= 8.2 min

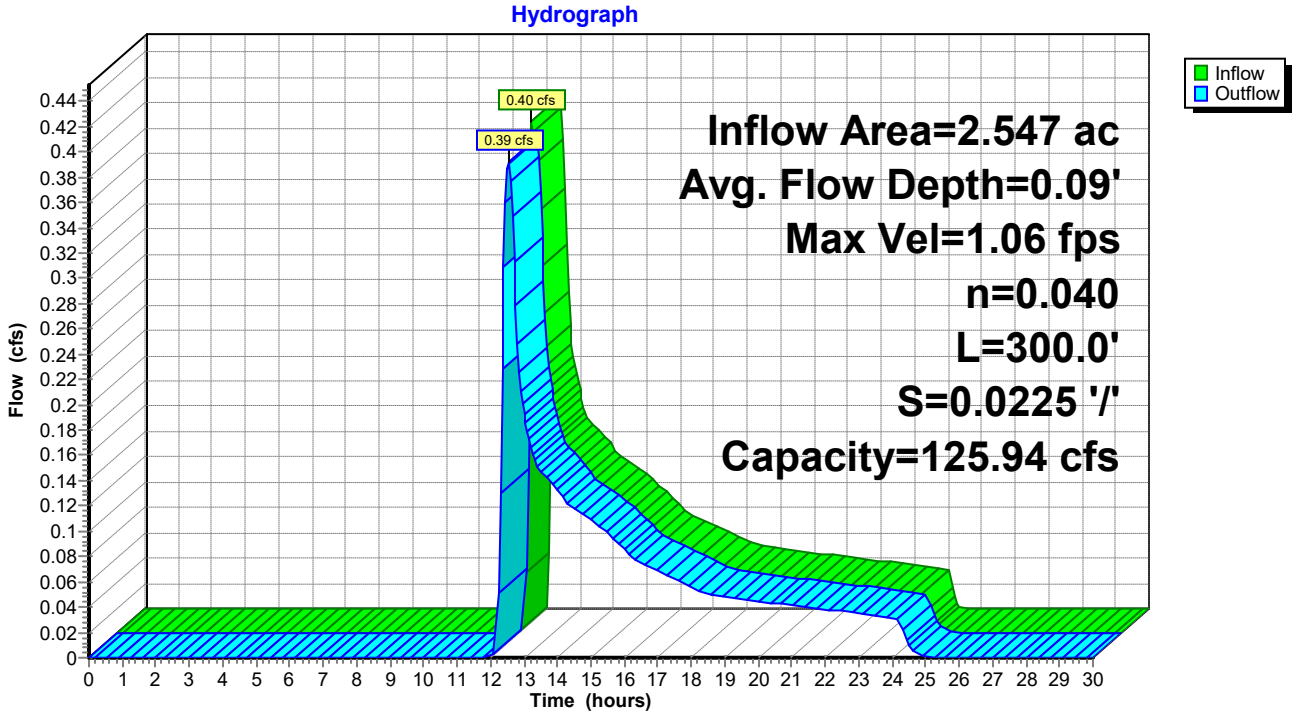
Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.06 fps, Min. Travel Time= 4.7 min
Avg. Velocity = 0.54 fps, Avg. Travel Time= 9.3 min

Peak Storage= 112 cf @ 12.46 hrs
Average Depth at Peak Storage= 0.09'
Bank-Full Depth= 2.00' Flow Area= 20.0 sf, Capacity= 125.94 cfs

4.00' x 2.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 3.0 '/' Top Width= 16.00'
Length= 300.0' Slope= 0.0225 '/'
Inlet Invert= 913.85', Outlet Invert= 907.10'

‡

Reach SW1A: (new Reach)



Summary for Reach SW1B: (new Reach)

[61] Hint: Exceeded Reach SW1A outlet invert by 0.06' @ 12.55 hrs

Inflow Area = 2.547 ac, 0.00% Impervious, Inflow Depth = 0.38" for 10-Year event
Inflow = 0.39 cfs @ 12.54 hrs, Volume= 0.081 af
Outflow = 0.39 cfs @ 12.62 hrs, Volume= 0.081 af, Atten= 1%, Lag= 4.8 min

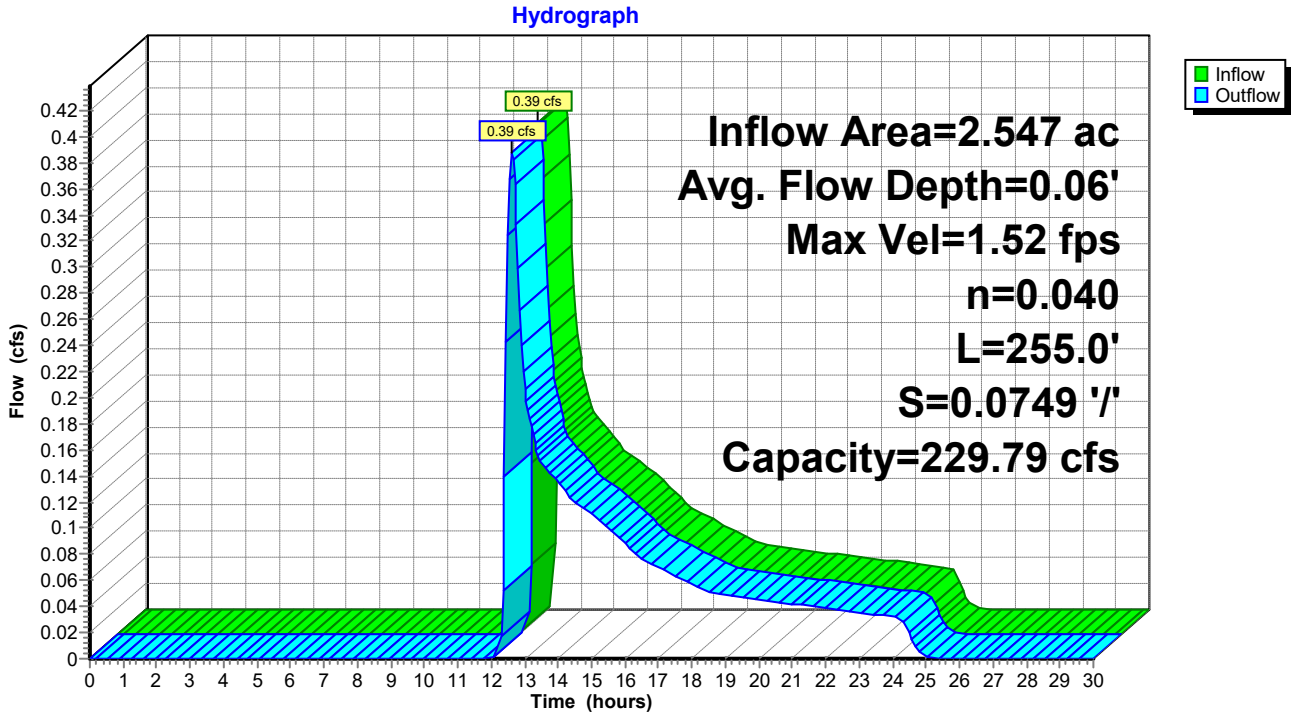
Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.52 fps, Min. Travel Time= 2.8 min
Avg. Velocity = 0.84 fps, Avg. Travel Time= 5.1 min

Peak Storage= 65 cf @ 12.57 hrs
Average Depth at Peak Storage= 0.06'
Bank-Full Depth= 2.00' Flow Area= 20.0 sf, Capacity= 229.79 cfs

4.00' x 2.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 3.0 '/' Top Width= 16.00'
Length= 255.0' Slope= 0.0749 '/'
Inlet Invert= 907.10', Outlet Invert= 888.00'

‡

Reach SW1B: (new Reach)



Summary for Reach SW2A: (new Reach)

Inflow Area = 11.353 ac, 1.93% Impervious, Inflow Depth = 0.15" for 10-Year event
Inflow = 0.24 cfs @ 13.93 hrs, Volume= 0.145 af
Outflow = 0.24 cfs @ 13.99 hrs, Volume= 0.145 af, Atten= 0%, Lag= 4.0 min

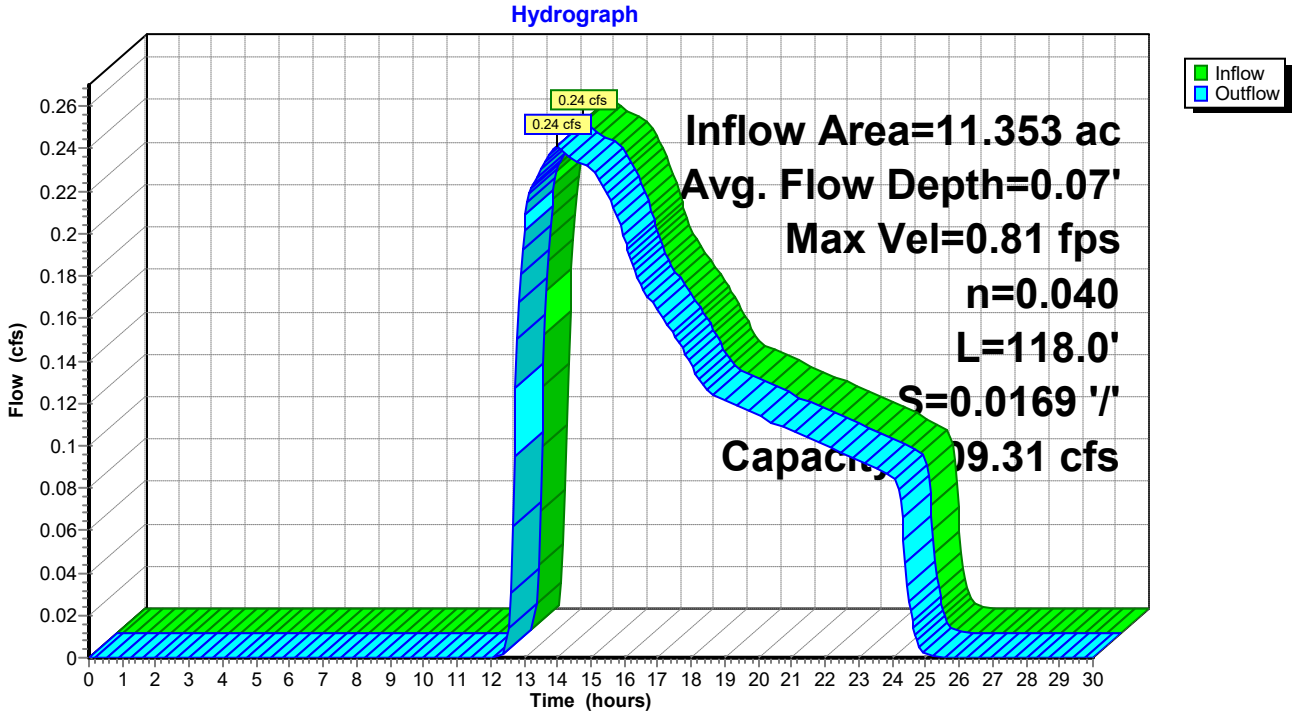
Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.81 fps, Min. Travel Time= 2.4 min
Avg. Velocity = 0.63 fps, Avg. Travel Time= 3.1 min

Peak Storage= 35 cf @ 13.95 hrs
Average Depth at Peak Storage= 0.07'
Bank-Full Depth= 2.00' Flow Area= 20.0 sf, Capacity= 109.31 cfs

4.00' x 2.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 3.0 '/' Top Width= 16.00'
Length= 118.0' Slope= 0.0169 '/'
Inlet Invert= 890.00', Outlet Invert= 888.00'

‡

Reach SW2A: (new Reach)



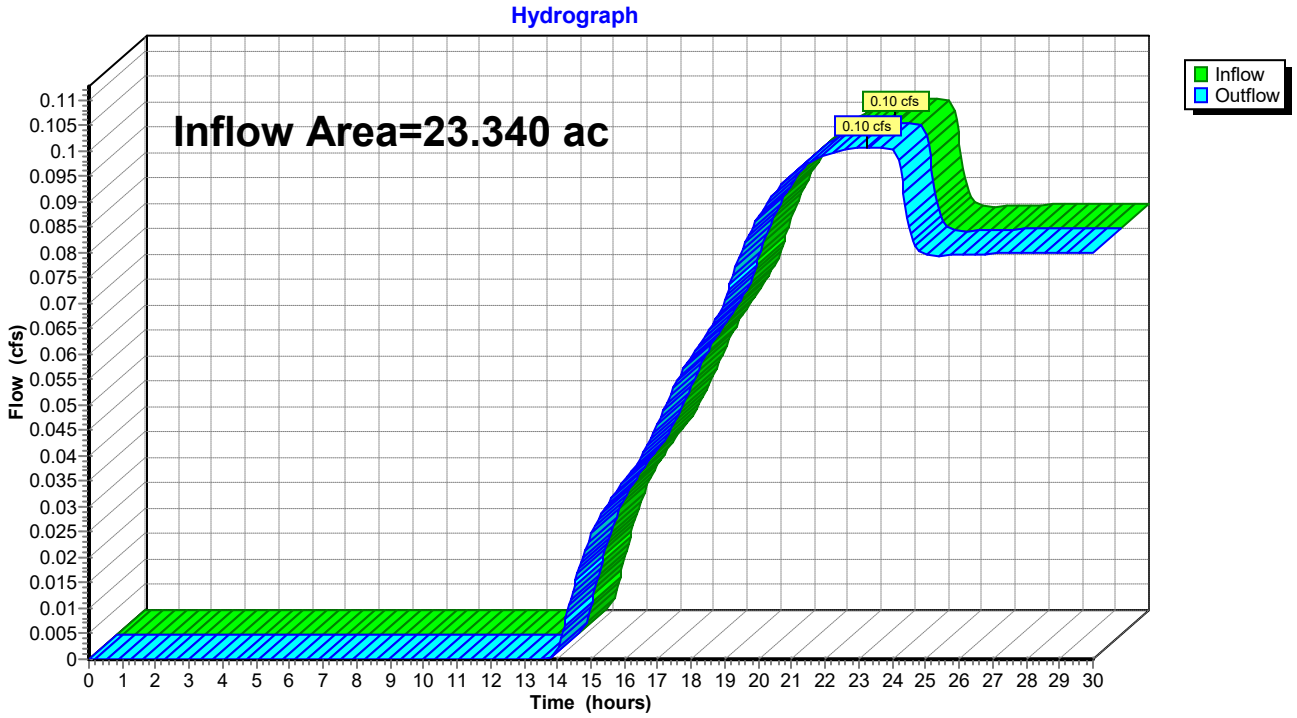
Summary for Reach WETLAND: WETLAND

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 23.340 ac, 0.97% Impervious, Inflow Depth > 0.05" for 10-Year event
Inflow = 0.10 cfs @ 23.25 hrs, Volume= 0.096 af
Outflow = 0.10 cfs @ 23.25 hrs, Volume= 0.096 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach WETLAND: WETLAND



Summary for Pond DB1: TO DP#1

[44] Hint: Outlet device #3 is below defined storage

Inflow Area = 2.133 ac, 0.00% Impervious, Inflow Depth = 0.73" for 10-Year event
Inflow = 1.21 cfs @ 12.15 hrs, Volume= 0.130 af
Outflow = 0.04 cfs @ 12.10 hrs, Volume= 0.060 af, Atten= 97%, Lag= 0.0 min
Primary = 0.04 cfs @ 12.10 hrs, Volume= 0.060 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 817.96' @ 23.42 hrs Surf.Area= 4,921 sf Storage= 3,942 cf

Plug-Flow detention time= 512.1 min calculated for 0.060 af (46% of inflow)
Center-of-Mass det. time= 355.8 min (1,261.5 - 905.7)

Volume	Invert	Avail.Storage	Storage Description
#1	817.00'	15,897 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

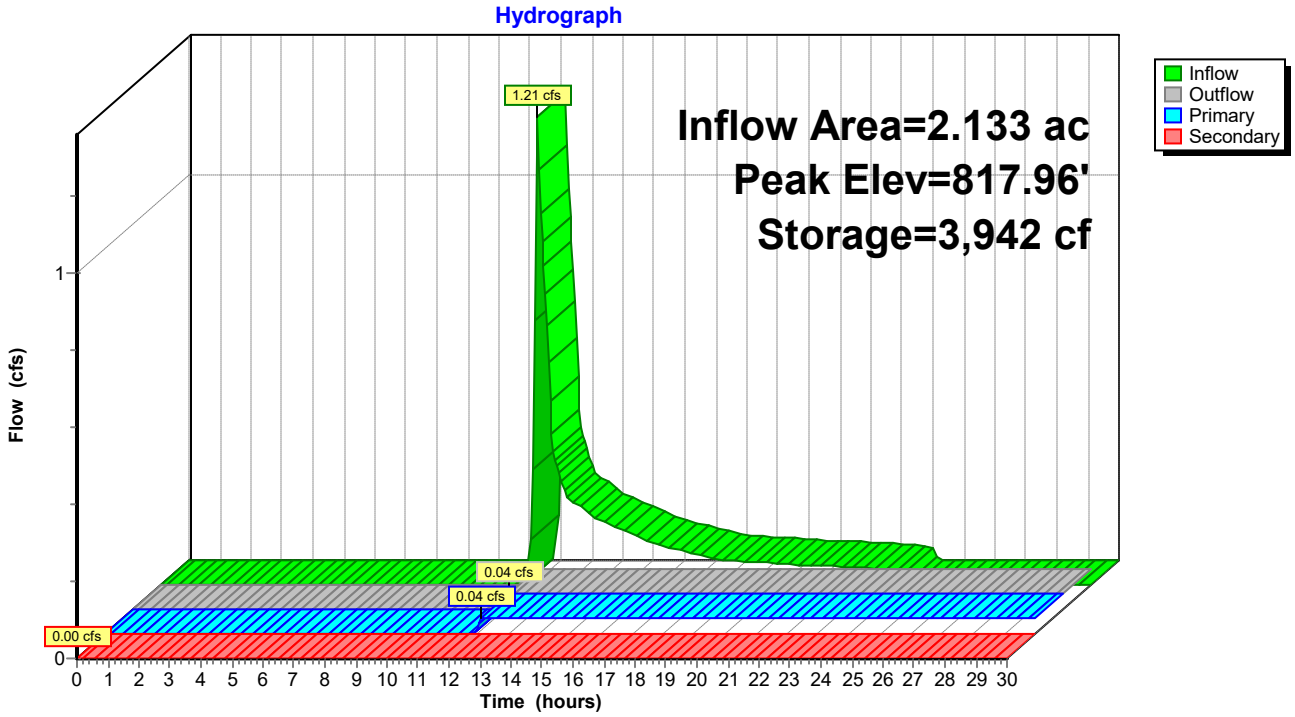
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
817.00	3,316	0	0
818.00	4,993	4,155	4,155
820.00	6,749	11,742	15,897

Device	Routing	Invert	Outlet Devices
#1	Secondary	819.50'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	815.40'	**6.0" Round Culvert** L= 42.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 815.40' / 815.00' S= 0.0095 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	815.40'	**Special & User-Defined** Head (feet) 0.00 1.00 2.00 3.00 4.00 6.00 8.00 Disch. (cfs) 0.000 0.040 0.040 0.040 0.040 0.040 0.040

Primary OutFlow Max=0.04 cfs @ 12.10 hrs HW=817.09' (Free Discharge)
└**2=Culvert** (Passes 0.04 cfs of 0.89 cfs potential flow)
└**3=Special & User-Defined** (Custom Controls 0.04 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=817.00' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond DB1: TO DP#1



Summary for Pond DB11: TO WETLAND

[44] Hint: Outlet device #3 is below defined storage

Inflow Area = 17.764 ac, 1.27% Impervious, Inflow Depth > 0.17" for 10-Year event
Inflow = 0.40 cfs @ 14.81 hrs, Volume= 0.247 af
Outflow = 0.08 cfs @ 14.35 hrs, Volume= 0.110 af, Atten= 80%, Lag= 0.0 min
Primary = 0.08 cfs @ 14.35 hrs, Volume= 0.110 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 882.54' @ 24.55 hrs Surf.Area= 14,051 sf Storage= 7,303 cf

Plug-Flow detention time= 426.6 min calculated for 0.110 af (45% of inflow)
Center-of-Mass det. time= 241.0 min (1,299.5 - 1,058.5)

Volume	Invert	Avail.Storage	Storage Description
#1	882.00'	67,293 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

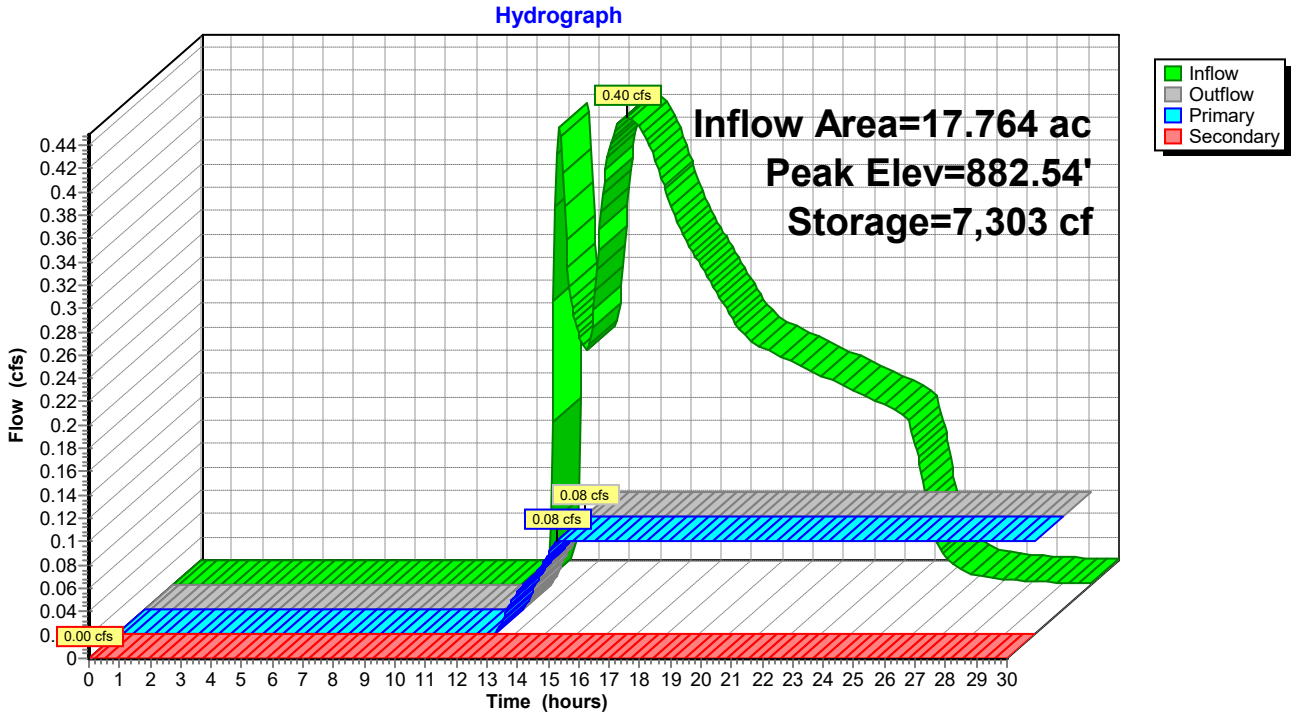
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
882.00	13,097	0	0
884.00	16,644	29,741	29,741
886.00	20,908	37,552	67,293

Device	Routing	Invert	Outlet Devices
#1	Secondary	885.00'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	879.37'	**12.0" Round Culvert** L= 36.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 879.37' / 878.00' S= 0.0381 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	879.70'	**Special & User-Defined** Head (feet) 0.00 1.00 15.00 Disch. (cfs) 0.000 0.080 0.080
#4	Device 2	883.80'	**3.0" Vert. Orifice/Grate** C= 0.600
#5	Device 2	884.50'	**2.1' long Sharp-Crested Rectangular Weir X 3.00** 2 End Contraction(s) 0.5' Crest Height

Primary OutFlow Max=0.08 cfs @ 14.35 hrs HW=882.13' (Free Discharge)
└**2=Culvert** (Passes 0.08 cfs of 4.49 cfs potential flow)
  ├**3=Special & User-Defined** (Custom Controls 0.08 cfs)
  ├**4=Orifice/Grate** (Controls 0.00 cfs)
  └**5=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=882.00' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond DB11: TO WETLAND



Summary for Pond DB12: TO DP12

[44] Hint: Outlet device #3 is below defined storage

Inflow Area = 7.158 ac, 0.00% Impervious, Inflow Depth = 0.33" for 10-Year event
Inflow = 0.91 cfs @ 12.42 hrs, Volume= 0.199 af
Outflow = 0.19 cfs @ 16.43 hrs, Volume= 0.161 af, Atten= 79%, Lag= 240.7 min
Primary = 0.19 cfs @ 16.43 hrs, Volume= 0.161 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 884.89' @ 16.43 hrs Surf.Area= 4,792 sf Storage= 3,758 cf

Plug-Flow detention time= 337.8 min calculated for 0.161 af (81% of inflow)
Center-of-Mass det. time= 257.8 min (1,221.5 - 963.7)

Volume	Invert	Avail.Storage	Storage Description
#1	884.00'	17,157 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

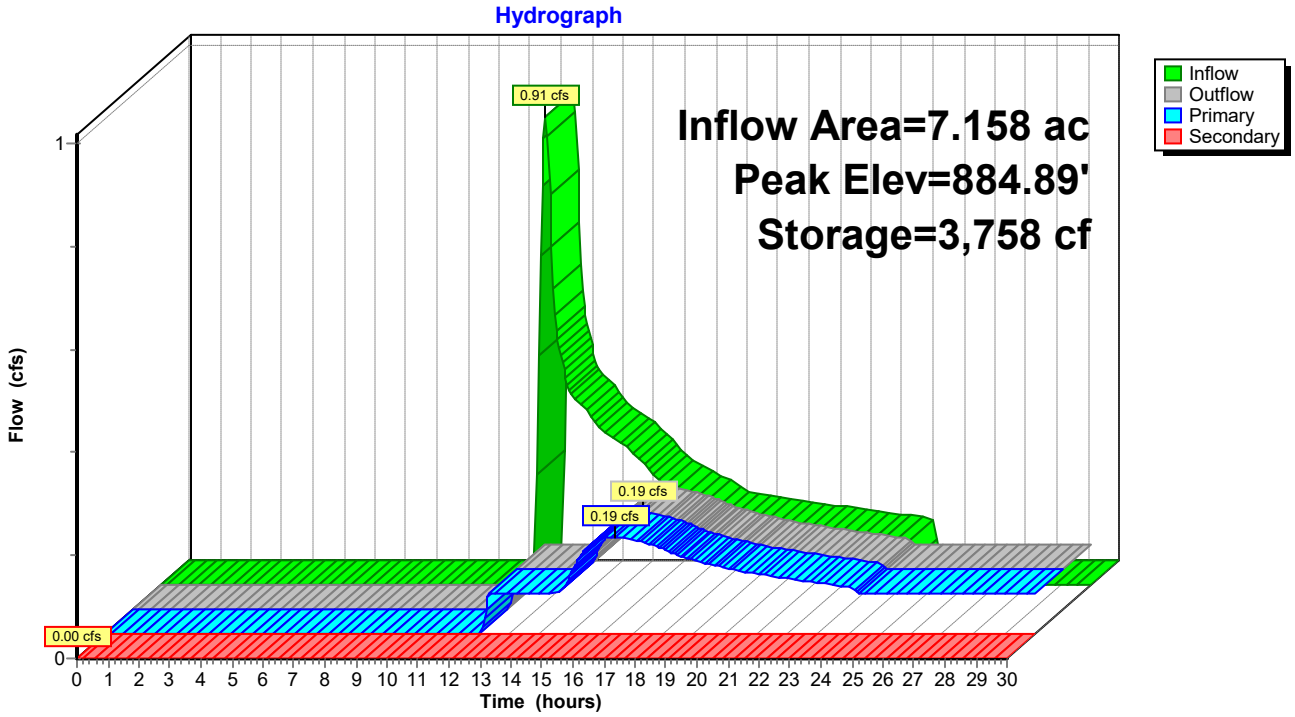
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
884.00	3,625	0	0
886.00	6,239	9,864	9,864
887.00	8,347	7,293	17,157

Device	Routing	Invert	Outlet Devices
#1	Secondary	886.00'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	882.10'	**12.0" Round Culvert** L= 28.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 882.10' / 881.50' S= 0.0214 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	882.30'	**Special & User-Defined** Head (feet) 0.00 1.00 15.00 Disch. (cfs) 0.000 0.080 0.080
#4	Device 2	884.80'	**6.0" Vert. Orifice/Grate X 3.00** C= 0.600
#5	Device 2	885.75'	**2.1' long Sharp-Crested Rectangular Weir X 3.00** 2 End Contraction(s) 0.5' Crest Height

Primary OutFlow Max=0.16 cfs @ 16.43 hrs HW=884.89' (Free Discharge)
└**2=Culvert** (Passes 0.16 cfs of 4.52 cfs potential flow)
  ├**3=Special & User-Defined** (Custom Controls 0.08 cfs)
  ├**4=Orifice/Grate** (Orifice Controls 0.08 cfs @ 1.04 fps)
  └**5=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=884.00' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond DB12: TO DP12



Summary for Pond DB13: TO DP#12

[62] Hint: Exceeded Reach DMH2 OUTLET depth by 0.64' @ 12.60 hrs

Inflow Area = 3.476 ac, 6.03% Impervious, Inflow Depth = 0.87" for 10-Year event
Inflow = 2.48 cfs @ 12.16 hrs, Volume= 0.252 af
Outflow = 1.35 cfs @ 12.45 hrs, Volume= 0.224 af, Atten= 46%, Lag= 17.2 min
Primary = 1.35 cfs @ 12.45 hrs, Volume= 0.224 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 892.88' @ 12.45 hrs Surf.Area= 3,507 sf Storage= 2,404 cf

Plug-Flow detention time= 102.4 min calculated for 0.224 af (89% of inflow)
Center-of-Mass det. time= 49.4 min (938.9 - 889.5)

Volume	Invert	Avail.Storage	Storage Description
#1	892.00'	14,332 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

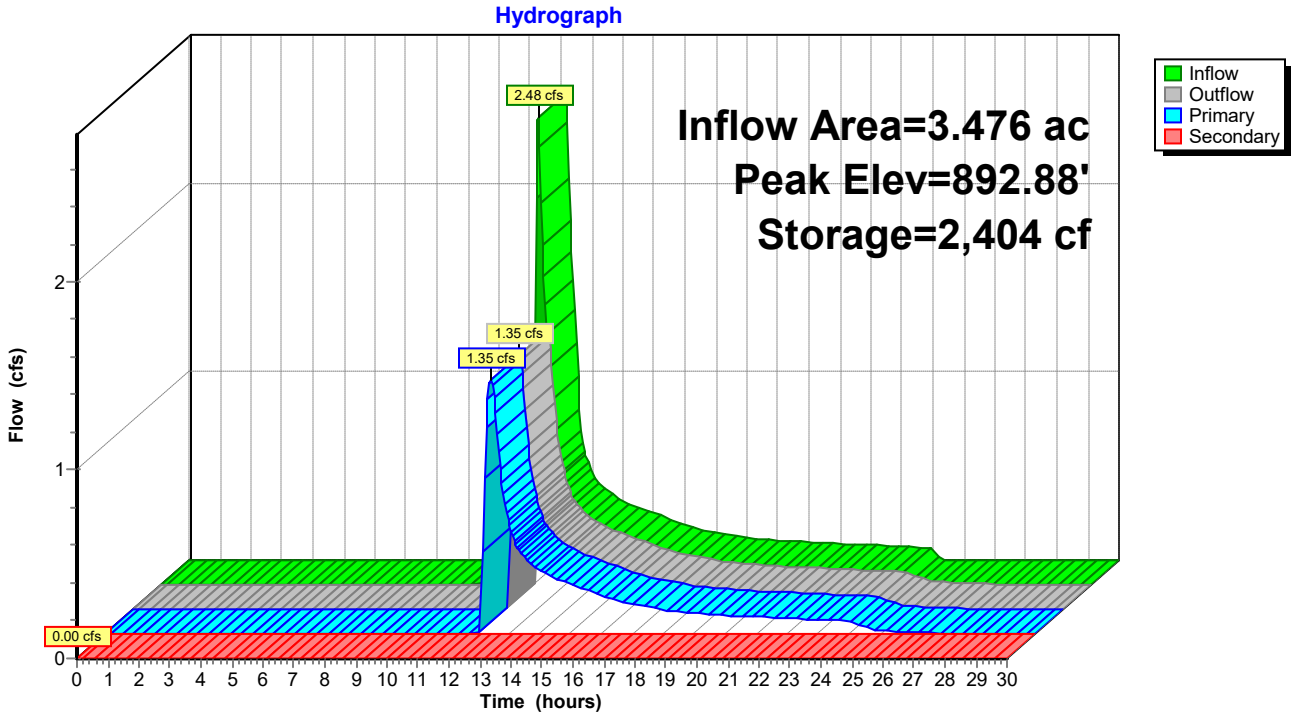
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
892.00	1,954	0	0
894.00	5,483	7,437	7,437
895.00	8,307	6,895	14,332

Device	Routing	Invert	Outlet Devices
#1	Secondary	894.00'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	890.00'	**12.0" Round Culvert** L= 38.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 890.00' / 888.00' S= 0.0526 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	893.50'	**2.6' long Sharp-Crested Rectangular Weir X 3.00** 2 End Contraction(s) 0.5' Crest Height
#4	Device 2	892.50'	**6.0" Vert. Orifice/Grate X 4.00** C= 0.600
#5	Device 2	893.00'	**3.0" Vert. Orifice/Grate X 3.00** C= 0.600

Primary OutFlow Max=1.34 cfs @ 12.45 hrs HW=892.88' (Free Discharge)
└**2=Culvert** (Passes 1.34 cfs of 4.61 cfs potential flow)
  ├**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
  ├**4=Orifice/Grate** (Orifice Controls 1.34 cfs @ 2.10 fps)
  └**5=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=892.00' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond DB13: TO DP#12



Summary for Pond DB14: TO DP#14

[44] Hint: Outlet device #3 is below defined storage

Inflow Area = 1.193 ac, 0.00% Impervious, Inflow Depth = 0.78" for 10-Year event
Inflow = 0.82 cfs @ 12.11 hrs, Volume= 0.078 af
Outflow = 0.08 cfs @ 12.15 hrs, Volume= 0.078 af, Atten= 90%, Lag= 2.4 min
Primary = 0.08 cfs @ 12.15 hrs, Volume= 0.078 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 902.56' @ 15.09 hrs Surf.Area= 2,566 sf Storage= 1,290 cf

Plug-Flow detention time= 180.2 min calculated for 0.078 af (100% of inflow)
Center-of-Mass det. time= 180.1 min (1,079.8 - 899.7)

Volume	Invert	Avail.Storage	Storage Description
#1	902.00'	15,766 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

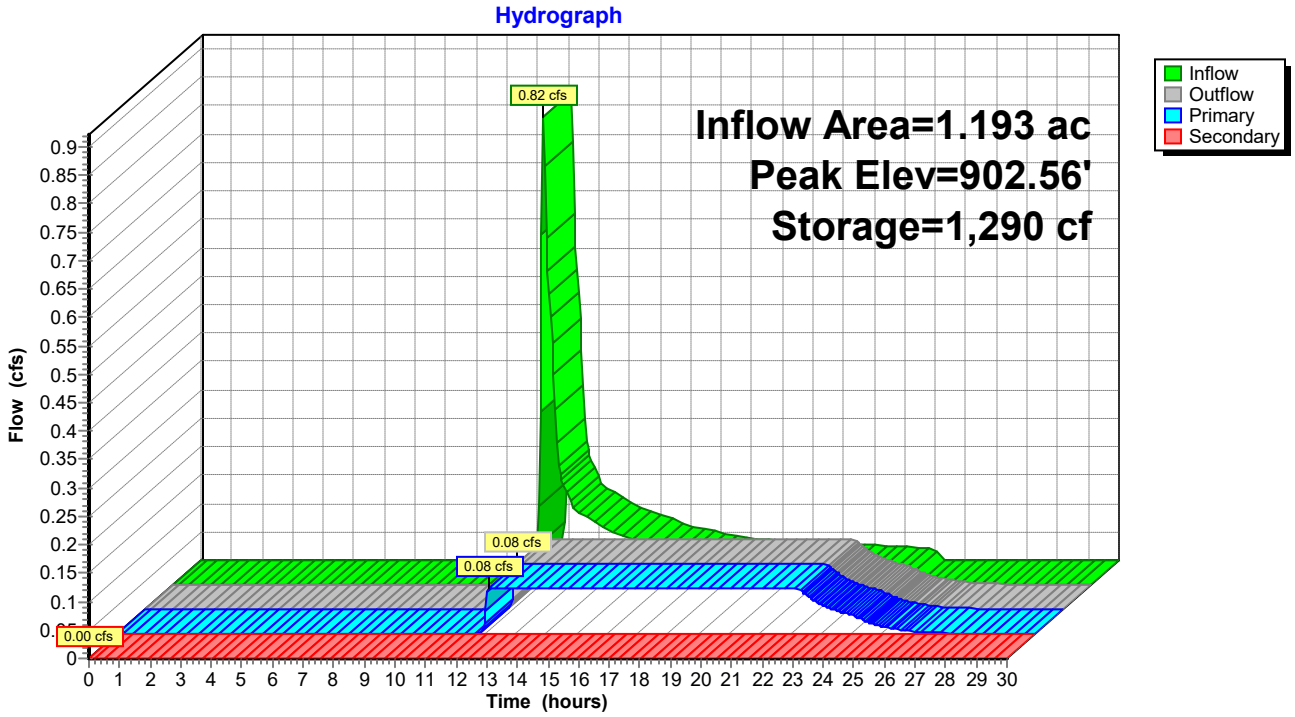
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
902.00	2,080	0	0
904.00	3,830	5,910	5,910
906.00	6,026	9,856	15,766

Device	Routing	Invert	Outlet Devices
#1	Secondary	905.00'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	900.30'	**4.0" Round Culvert** L= 50.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 900.30' / 898.00' S= 0.0460 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.09 sf
#3	Device 2	900.40'	**Special & User-Defined** Head (feet) 0.00 1.00 15.00 Disch. (cfs) 0.000 0.080 0.080

Primary OutFlow Max=0.08 cfs @ 12.15 hrs HW=902.18' (Free Discharge)
2=Culvert (Passes 0.08 cfs of 0.43 cfs potential flow)
3=Special & User-Defined (Custom Controls 0.08 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=902.00' (Free Discharge)
1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond DB14: TO DP#14



Summary for Pond DB2: TO DP#1

[44] Hint: Outlet device #4 is below defined storage

Inflow Area = 5.809 ac, 0.00% Impervious, Inflow Depth = 0.85" for 10-Year event
Inflow = 3.95 cfs @ 12.17 hrs, Volume= 0.413 af
Outflow = 0.70 cfs @ 13.17 hrs, Volume= 0.280 af, Atten= 82%, Lag= 60.4 min
Primary = 0.70 cfs @ 13.17 hrs, Volume= 0.280 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 808.58' @ 13.17 hrs Surf.Area= 5,835 sf Storage= 7,064 cf

Plug-Flow detention time= 261.0 min calculated for 0.280 af (68% of inflow)
Center-of-Mass det. time= 146.5 min (1,044.8 - 898.2)

Volume	Invert	Avail.Storage	Storage Description
#1	807.00'	17,094 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

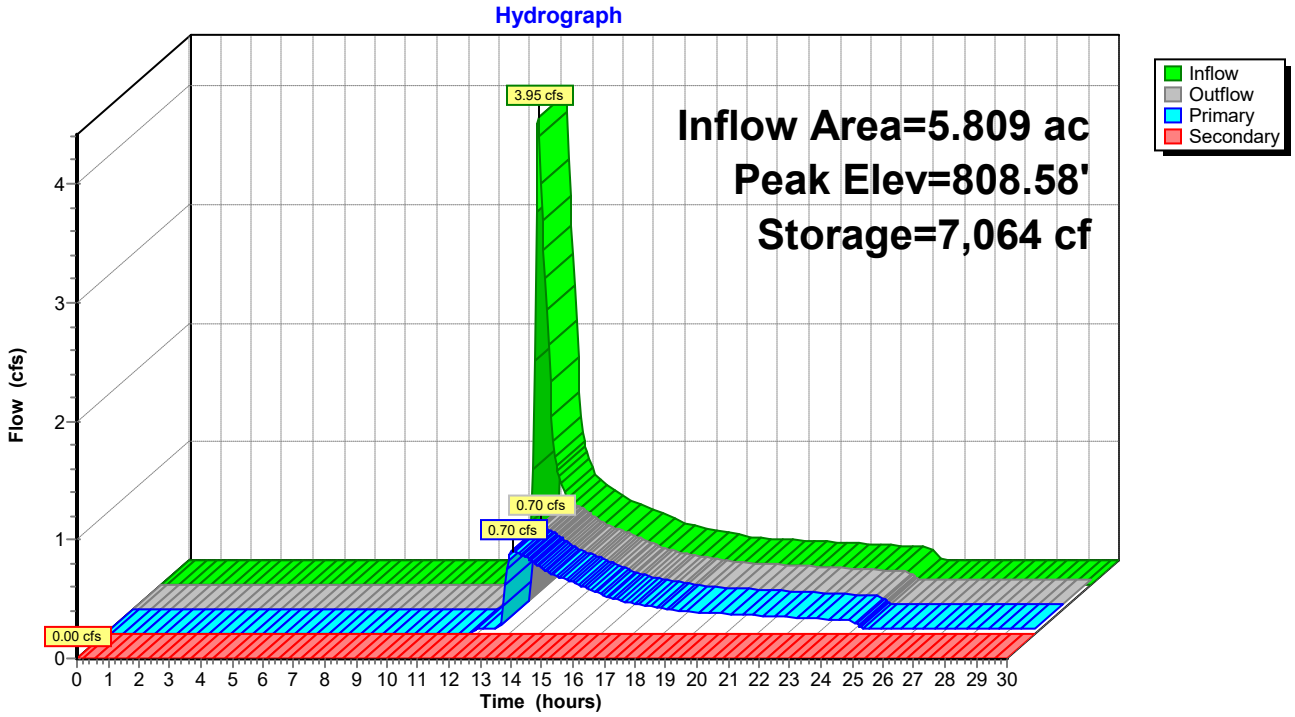
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
807.00	3,109	0	0
808.00	4,812	3,961	3,961
810.00	8,321	13,133	17,094

Device	Routing	Invert	Outlet Devices
#1	Secondary	809.00'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	806.30'	**12.0" Round Culvert** L= 29.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 806.30' / 806.00' S= 0.0103 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf
#3	Device 2	808.50'	**2.6' long Sharp-Crested Rectangular Weir X 3.00** 2 End Contraction(s) 0.5' Crest Height
#4	Device 2	806.00'	**Special & User-Defined** Head (feet) 0.00 1.00 2.00 3.00 4.00 6.00 8.00 Disch. (cfs) 0.000 0.040 0.040 0.040 0.040 0.040 0.040

Primary OutFlow Max=0.66 cfs @ 13.17 hrs HW=808.58' (Free Discharge)
└**2=Culvert** (Passes 0.66 cfs of 5.64 cfs potential flow)
  └**3=Sharp-Crested Rectangular Weir** (Weir Controls 0.62 cfs @ 0.96 fps)
  └**4=Special & User-Defined** (Custom Controls 0.04 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=807.00' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond DB2: TO DP#1



Summary for Pond DB3: TO DP#2

[44] Hint: Outlet device #3 is below defined storage

Inflow Area = 1.471 ac, 0.00% Impervious, Inflow Depth = 0.24" for 10-Year event
Inflow = 0.11 cfs @ 12.42 hrs, Volume= 0.030 af
Outflow = 0.10 cfs @ 12.50 hrs, Volume= 0.030 af, Atten= 9%, Lag= 4.8 min
Primary = 0.10 cfs @ 12.50 hrs, Volume= 0.030 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 856.01' @ 12.50 hrs Surf.Area= 3,498 sf Storage= 28 cf

Plug-Flow detention time= 4.9 min calculated for 0.030 af (100% of inflow)
Center-of-Mass det. time= 4.8 min (989.8 - 985.1)

Volume	Invert	Avail.Storage	Storage Description
#1	856.00'	8,610 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

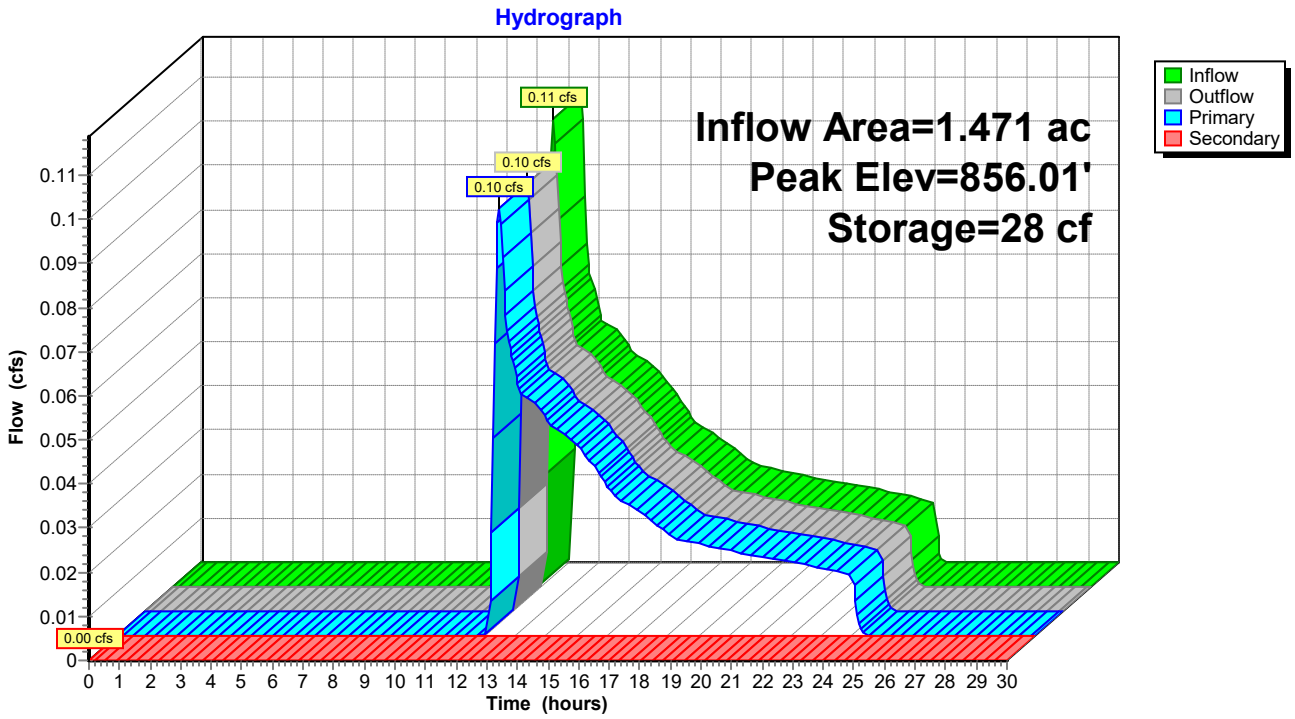
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
856.00	3,492	0	0
858.00	5,118	8,610	8,610

Device	Routing	Invert	Outlet Devices
#1	Secondary	857.00'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	854.50'	**6.0" Round Culvert** L= 46.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 854.50' / 854.00' S= 0.0109 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	854.50'	**Special & User-Defined** Head (feet) 0.00 1.00 2.00 3.00 4.00 6.00 Disch. (cfs) 0.000 0.550 0.550 0.550 0.550 0.550

Primary OutFlow Max=0.55 cfs @ 12.50 hrs HW=856.01' (Free Discharge)
↑**2=Culvert** (Passes 0.55 cfs of 0.84 cfs potential flow)
↑**3=Special & User-Defined** (Custom Controls 0.55 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=856.00' (Free Discharge)
↑**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond DB3: TO DP#2



Summary for Pond DB4: TO DP#2

[44] Hint: Outlet device #3 is below defined storage

Inflow Area = 1.454 ac, 3.28% Impervious, Inflow Depth = 0.16" for 10-Year event
Inflow = 0.04 cfs @ 12.49 hrs, Volume= 0.020 af
Outflow = 0.03 cfs @ 13.70 hrs, Volume= 0.020 af, Atten= 5%, Lag= 72.5 min
Primary = 0.03 cfs @ 13.70 hrs, Volume= 0.020 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 888.00' @ 13.70 hrs Surf.Area= 5,739 sf Storage= 13 cf

Plug-Flow detention time= 6.3 min calculated for 0.020 af (100% of inflow)
Center-of-Mass det. time= 6.3 min (1,024.7 - 1,018.4)

Volume	Invert	Avail.Storage	Storage Description
#1	888.00'	15,032 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

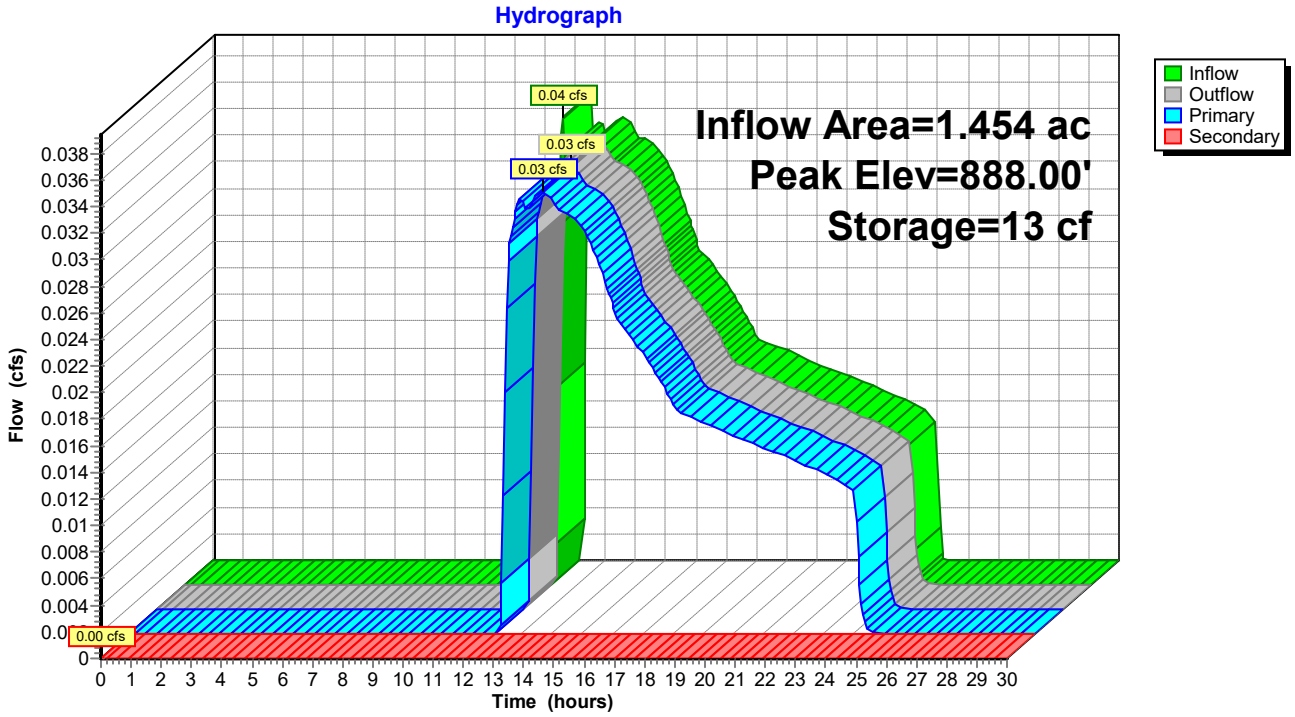
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
888.00	5,735	0	0
890.00	9,297	15,032	15,032

Device	Routing	Invert	Outlet Devices
#1	Secondary	889.00'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	885.60'	**6.0" Round Culvert** L= 34.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 885.60' / 885.00' S= 0.0176 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	885.60'	**Special & User-Defined** Head (feet) 0.00 1.00 2.00 3.00 4.00 6.00 Disch. (cfs) 0.000 0.550 0.550 0.550 0.550 0.550

Primary OutFlow Max=0.55 cfs @ 13.70 hrs HW=888.00' (Free Discharge)
↑**2=Culvert** (Passes 0.55 cfs of 1.09 cfs potential flow)
↑**3=Special & User-Defined** (Custom Controls 0.55 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=888.00' (Free Discharge)
↑**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond DB4: TO DP#2



Summary for Pond DB5: TO DP#2

[44] Hint: Outlet device #3 is below defined storage

Inflow Area = 1.032 ac, 3.16% Impervious, Inflow Depth = 0.25" for 10-Year event
Inflow = 0.08 cfs @ 12.39 hrs, Volume= 0.021 af
Outflow = 0.08 cfs @ 12.42 hrs, Volume= 0.021 af, Atten= 1%, Lag= 1.8 min
Primary = 0.08 cfs @ 12.42 hrs, Volume= 0.021 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 866.01' @ 12.42 hrs Surf.Area= 1,238 sf Storage= 8 cf

Plug-Flow detention time= 1.7 min calculated for 0.021 af (100% of inflow)
Center-of-Mass det. time= 1.7 min (983.5 - 981.8)

Volume	Invert	Avail.Storage	Storage Description
#1	866.00'	4,204 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

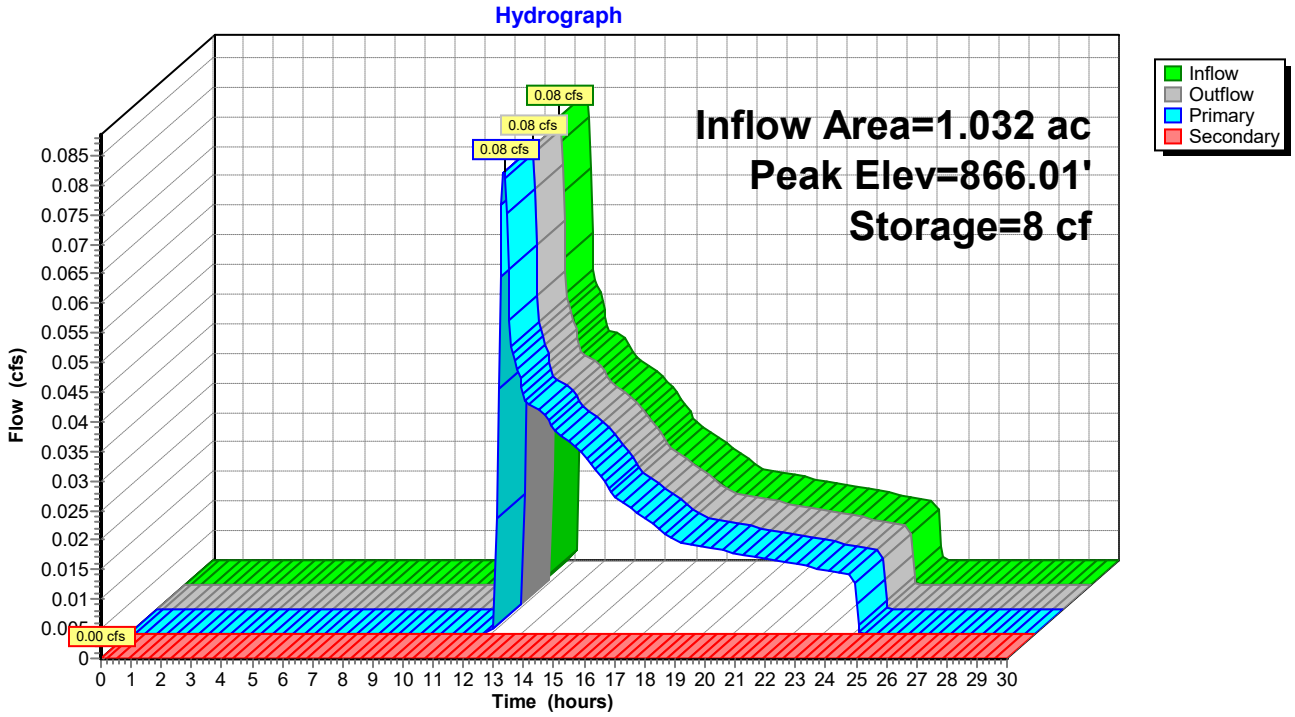
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
866.00	1,232	0	0
868.00	2,972	4,204	4,204

Device	Routing	Invert	Outlet Devices
#1	Secondary	867.00'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	864.50'	**6.0" Round Culvert** L= 26.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 864.50' / 864.00' S= 0.0192 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	864.50'	**Special & User-Defined** Head (feet) 0.00 1.00 2.00 4.00 6.00 Disch. (cfs) 0.000 0.550 0.550 0.550 0.550

Primary OutFlow Max=0.55 cfs @ 12.42 hrs HW=866.01' (Free Discharge)
↑**2=Culvert** (Passes 0.55 cfs of 0.84 cfs potential flow)
↑**3=Special & User-Defined** (Custom Controls 0.55 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=866.00' (Free Discharge)
↑**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond DB5: TO DP#2



Summary for Pond SB1: TO DB#11

Inflow Area = 11.353 ac, 1.93% Impervious, Inflow Depth = 0.15" for 10-Year event
Inflow = 0.24 cfs @ 13.99 hrs, Volume= 0.145 af
Outflow = 0.23 cfs @ 15.04 hrs, Volume= 0.129 af, Atten= 5%, Lag= 63.1 min
Primary = 0.23 cfs @ 15.04 hrs, Volume= 0.129 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 885.76' @ 15.04 hrs Surf.Area= 1,622 sf Storage= 1,053 cf

Plug-Flow detention time= 107.6 min calculated for 0.129 af (89% of inflow)
Center-of-Mass det. time= 65.6 min (1,111.5 - 1,046.0)

Volume	Invert	Avail.Storage	Storage Description
#1	885.00'	6,749 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

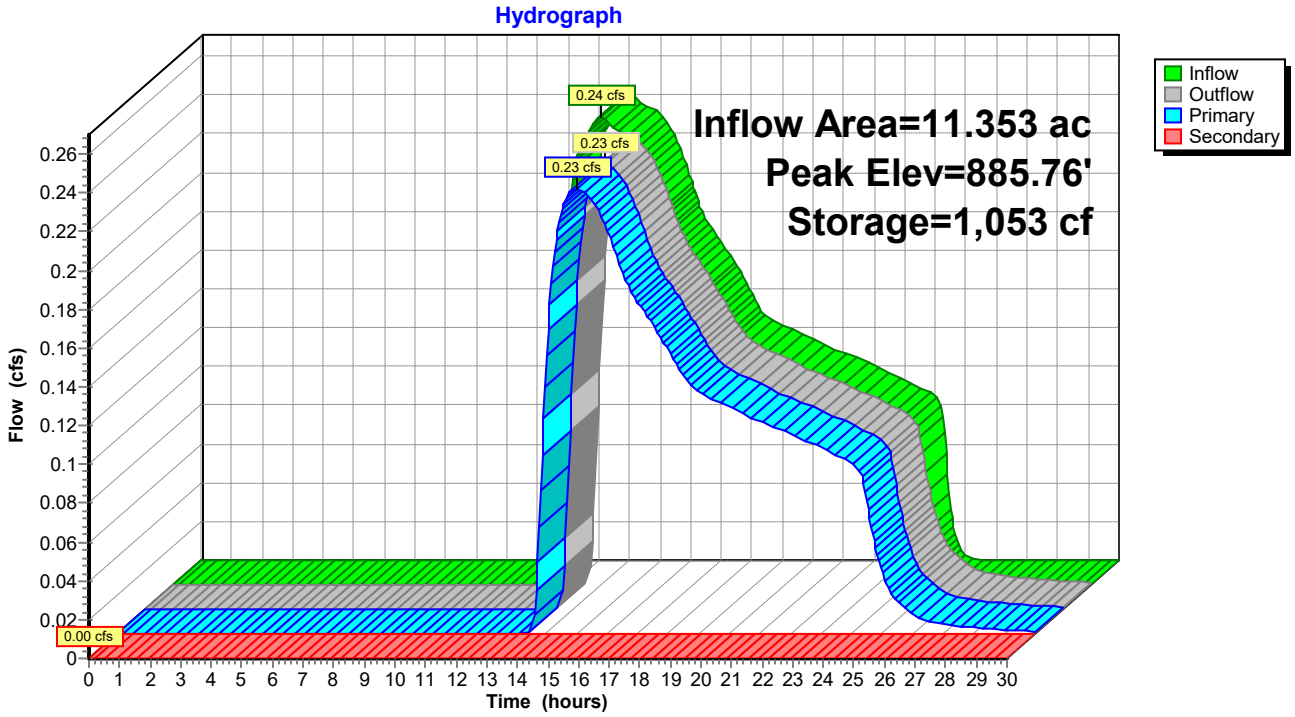
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
885.00	1,134	0	0
886.00	1,773	1,454	1,454
888.00	3,522	5,295	6,749

Device	Routing	Invert	Outlet Devices
#1	Primary	885.50'	**12.0" Round Culvert** L= 51.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 885.50' / 883.00' S= 0.0490 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	887.00'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.23 cfs @ 15.04 hrs HW=885.76' (Free Discharge)
1=Culvert (Inlet Controls 0.23 cfs @ 1.38 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=885.00' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond SB1: TO DB#11



Summary for Pond SB1-OLD: TO DP#2

[62] Hint: Exceeded Reach DMH-C OUTLET depth by 1.50' @ 25.15 hrs

Inflow Area = 2.265 ac, 25.48% Impervious, Inflow Depth = 1.24" for 10-Year event
Inflow = 2.53 cfs @ 12.06 hrs, Volume= 0.235 af
Outflow = 0.90 cfs @ 12.42 hrs, Volume= 0.133 af, Atten= 64%, Lag= 21.7 min
Primary = 0.90 cfs @ 12.42 hrs, Volume= 0.133 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 880.61' @ 12.42 hrs Surf.Area= 3,662 sf Storage= 4,835 cf

Plug-Flow detention time= 248.0 min calculated for 0.133 af (57% of inflow)
Center-of-Mass det. time= 122.3 min (940.2 - 817.9)

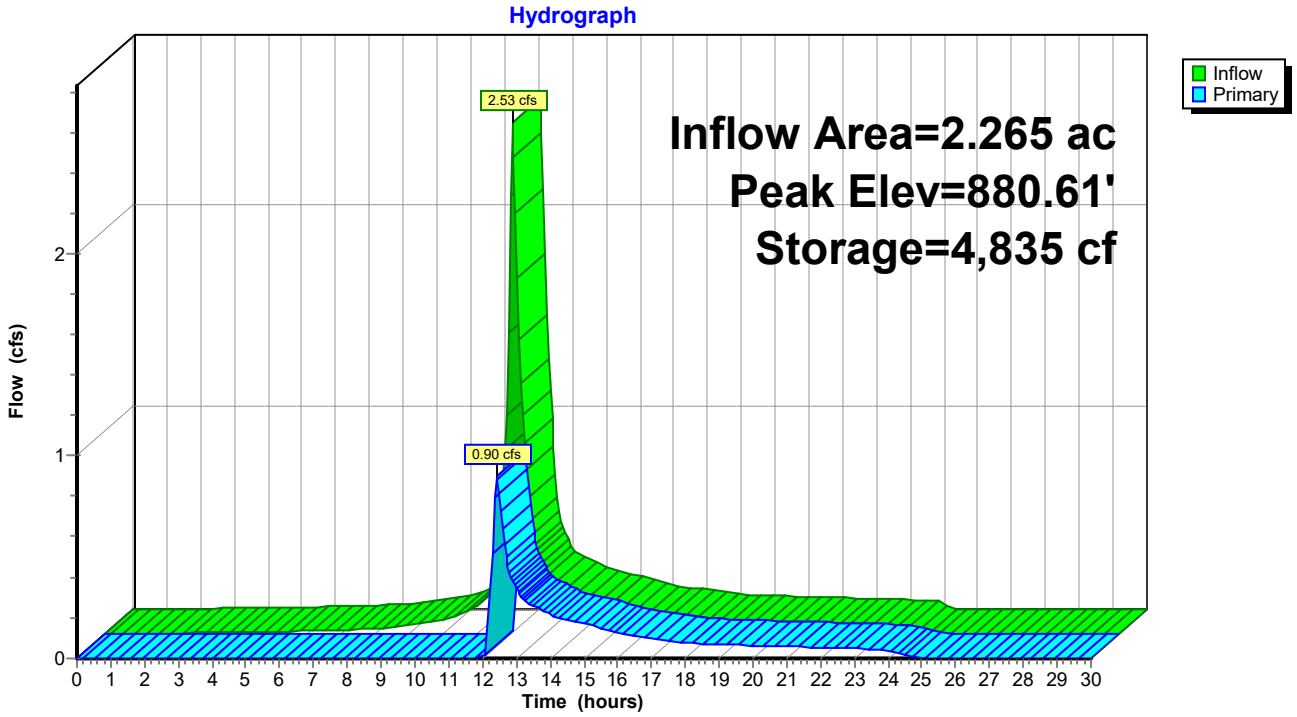
Volume	Invert	Avail.Storage	Storage Description
#1	879.00'	6,327 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
879.00	2,346	0	0
881.00	3,981	6,327	6,327

Device	Routing	Invert	Outlet Devices
#1	Primary	880.50'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.89 cfs @ 12.42 hrs HW=880.61' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 0.89 cfs @ 0.82 fps)

Pond SB1-OLD: TO DP#2



Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment P11: TO DP #1 Runoff Area=841,459 sf 0.68% Impervious Runoff Depth=0.54"
Flow Length=1,169' Tc=14.9 min CN=45 Runoff=4.77 cfs 0.876 af

Subcatchment P111: TO 1P Runoff Area=494,552 sf 1.93% Impervious Runoff Depth=0.33"
Flow Length=1,156' Tc=23.2 min CN=41 Runoff=1.00 cfs 0.314 af

Subcatchment P112: TO DB11 Runoff Area=168,295 sf 0.17% Impervious Runoff Depth=0.27"
Flow Length=644' Tc=11.8 min CN=39 Runoff=0.26 cfs 0.087 af

Subcatchment P113: TO DB11 Runoff Area=110,958 sf 0.00% Impervious Runoff Depth=0.66"
Flow Length=350' Tc=11.3 min CN=47 Runoff=0.92 cfs 0.140 af

Subcatchment P114: P114 Runoff Area=242,907 sf 0.00% Impervious Runoff Depth=0.16"
Flow Length=635' Tc=27.8 min CN=36 Runoff=0.12 cfs 0.072 af

Subcatchment P12: TO BASIN #2 Runoff Area=253,045 sf 0.00% Impervious Runoff Depth=1.27"
Flow Length=915' Tc=9.8 min CN=57 Runoff=6.55 cfs 0.616 af

Subcatchment P121: TO DP12 Runoff Area=847,404 sf 0.00% Impervious Runoff Depth=0.52"
Flow Length=1,458' Tc=36.2 min CN=44 Runoff=3.29 cfs 0.835 af

Subcatchment P122: TO DB12 Runoff Area=311,821 sf 0.00% Impervious Runoff Depth=0.59"
Flow Length=577' Tc=10.5 min CN=46 Runoff=2.16 cfs 0.355 af

Subcatchment P123: TO D.BASIN#13 Runoff Area=121,880 sf 0.00% Impervious Runoff Depth=0.99"
Flow Length=460' Tc=8.4 min CN=53 Runoff=2.29 cfs 0.232 af

Subcatchment P13: TO BASIN#1 Runoff Area=92,916 sf 0.00% Impervious Runoff Depth=1.12"
Flow Length=853' Tc=7.5 min CN=55 Runoff=2.14 cfs 0.199 af

Subcatchment P131: TO DP131 Runoff Area=245,753 sf 0.00% Impervious Runoff Depth=0.99"
Flow Length=308' Tc=15.2 min CN=53 Runoff=3.80 cfs 0.467 af

Subcatchment P141: TO DP14 Runoff Area=72,092 sf 0.00% Impervious Runoff Depth=0.81"
Flow Length=626' Tc=19.4 min CN=50 Runoff=0.74 cfs 0.111 af

Subcatchment P142: TO D-BASIN#14 Runoff Area=51,980 sf 0.00% Impervious Runoff Depth=1.19"
Flow Length=75' Slope=0.0500 '/' Tc=5.6 min CN=56 Runoff=1.41 cfs 0.118 af

Subcatchment P151: TO DP15 Runoff Area=42,383 sf 10.17% Impervious Runoff Depth=1.81"
Flow Length=185' Tc=7.5 min CN=64 Runoff=1.85 cfs 0.147 af

Subcatchment P161: TO DP16 Runoff Area=60,411 sf 10.83% Impervious Runoff Depth=1.58"
Flow Length=635' Tc=20.5 min CN=61 Runoff=1.58 cfs 0.183 af

Subcatchment P21: TO DP#2 Runoff Area=1,361,392 sf 0.70% Impervious Runoff Depth=0.21"
Flow Length=2,645' Tc=74.2 min CN=38 Runoff=0.91 cfs 0.551 af

Subcatchment P21A: TO SB1 Runoff Area=55,508 sf 0.00% Impervious Runoff Depth=0.32"
Flow Length=325' Slope=0.0900 '/' Tc=5.3 min CN=40 Runoff=0.13 cfs 0.034 af

Subcatchment P21B: TO DCB-F Runoff Area=4,375 sf 49.10% Impervious Runoff Depth=2.09"
Flow Length=103' Tc=5.0 min CN=68 Runoff=0.24 cfs 0.018 af

Subcatchment P22: TO BASIN#3 Runoff Area=64,084 sf 0.00% Impervious Runoff Depth=0.47"
Flow Length=660' Tc=6.6 min CN=44 Runoff=0.31 cfs 0.057 af

Subcatchment P23: TO BASIN #4 Runoff Area=63,337 sf 3.28% Impervious Runoff Depth=0.35"
Flow Length=180' Tc=5.0 min CN=41 Runoff=0.18 cfs 0.042 af

Subcatchment P24: TO BASIN#5 Runoff Area=44,933 sf 3.16% Impervious Runoff Depth=0.47"
Flow Length=385' Tc=5.0 min CN=44 Runoff=0.22 cfs 0.041 af

Subcatchment P25: TO DCB-D Runoff Area=2,108 sf 100.00% Impervious Runoff Depth=5.06"
Tc=0.0 min CN=98 Runoff=0.29 cfs 0.020 af

Subcatchment P26: TO DCB-A Runoff Area=19,626 sf 43.07% Impervious Runoff Depth=2.87"
Tc=0.0 min CN=77 Runoff=1.74 cfs 0.108 af

Subcatchment P27: TO DCB-B Runoff Area=8,741 sf 47.12% Impervious Runoff Depth=3.01"
Flow Length=286' Tc=5.0 min CN=78 Runoff=0.71 cfs 0.050 af

Subcatchment P28: TO DCB-C Runoff Area=4,121 sf 100.00% Impervious Runoff Depth=5.06"
Flow Length=286' Tc=5.0 min CN=98 Runoff=0.49 cfs 0.040 af

Subcatchment P29: TO DCB-D Runoff Area=4,188 sf 100.00% Impervious Runoff Depth=5.06"
Flow Length=280' Tc=5.0 min CN=98 Runoff=0.50 cfs 0.041 af

Subcatchment PS1: TO DCB#1 Runoff Area=17,260 sf 26.33% Impervious Runoff Depth=2.32"
Flow Length=210' Tc=7.3 min CN=71 Runoff=1.01 cfs 0.077 af

Subcatchment PS2: TO DCB#2 Runoff Area=12,294 sf 37.25% Impervious Runoff Depth=2.68"
Flow Length=225' Tc=5.0 min CN=75 Runoff=0.89 cfs 0.063 af

Reach 1R: (new Reach) Avg. Flow Depth=0.01' Max Vel=0.03 fps Inflow=0.08 cfs 0.114 af
n=0.400 L=268.0' S=0.0149 '/' Capacity=92.37 cfs Outflow=0.08 cfs 0.079 af

Reach 2R: WOODS Avg. Flow Depth=0.02' Max Vel=0.04 fps Inflow=0.15 cfs 0.156 af
n=0.400 L=429.0' S=0.0228 '/' Capacity=35.67 cfs Outflow=0.14 cfs 0.089 af

Reach 3R: GRASS Avg. Flow Depth=0.01' Max Vel=0.04 fps Inflow=0.04 cfs 0.060 af
n=0.240 L=14.0' S=0.0357 '/' Capacity=74.34 cfs Outflow=0.04 cfs 0.059 af

Reach 4R: (new Reach) Avg. Flow Depth=0.00' Max Vel=0.00 fps
3.0" Round Pipe n=0.020 L=100.0' S=0.0050 '/' Capacity=0.04 cfs Outflow=0.00 cfs 0.000 af

Reach 5R: WOODS Avg. Flow Depth=0.01' Max Vel=0.06 fps Inflow=0.13 cfs 0.151 af
n=0.400 L=75.0' S=0.0800 '/' Capacity=66.76 cfs Outflow=0.13 cfs 0.146 af

Reach 6R: WOODS Avg. Flow Depth=0.01' Max Vel=0.03 fps Inflow=0.04 cfs 0.059 af
n=0.400 L=259.0' S=0.0405 '/' Capacity=47.52 cfs Outflow=0.04 cfs 0.043 af

Reach 7R: GRASS Avg. Flow Depth=0.08' Max Vel=0.18 fps Inflow=2.95 cfs 0.483 af
n=0.240 L=20.0' S=0.0250 '/' Capacity=62.20 cfs Outflow=2.91 cfs 0.482 af

Reach 8R: WOODS Avg. Flow Depth=0.08' Max Vel=0.07 fps Inflow=2.91 cfs 0.482 af
n=0.400 L=222.0' S=0.0090 '/' Capacity=22.40 cfs Outflow=1.07 cfs 0.467 af

Reach 9R: WOODS-2 Avg. Flow Depth=0.03' Max Vel=0.04 fps Inflow=0.54 cfs 0.243 af
n=0.400 L=679.0' S=0.0147 '/' Capacity=28.64 cfs Outflow=0.25 cfs 0.170 af

Reach 10R: WOODS-1 Avg. Flow Depth=0.03' Max Vel=0.07 fps Inflow=1.99 cfs 0.208 af
n=0.400 L=400.0' S=0.0400 '/' Capacity=47.20 cfs Outflow=0.46 cfs 0.201 af

Reach 11R: WOODS-3 Avg. Flow Depth=0.04' Max Vel=0.02 fps Inflow=0.27 cfs 0.191 af
n=0.400 L=577.0' S=0.0035 '/' Capacity=13.90 cfs Outflow=0.09 cfs 0.011 af

Reach 12R: GRASS Avg. Flow Depth=0.01' Max Vel=0.07 fps Inflow=0.16 cfs 0.042 af
n=0.240 L=170.0' S=0.1000 '/' Capacity=124.39 cfs Outflow=0.08 cfs 0.042 af

Reach 13R: WOODS-4 Avg. Flow Depth=0.00' Max Vel=0.01 fps Inflow=0.09 cfs 0.011 af
n=0.400 L=643.0' S=0.0124 '/' Capacity=26.33 cfs Outflow=0.00 cfs 0.000 af

Reach 14R: WOODS Avg. Flow Depth=0.01' Max Vel=0.04 fps Inflow=0.22 cfs 0.041 af
n=0.400 L=142.0' S=0.0563 '/' Capacity=56.02 cfs Outflow=0.09 cfs 0.041 af

Reach 15R: WOODS Avg. Flow Depth=0.02' Max Vel=0.04 fps Inflow=0.13 cfs 0.146 af
n=0.400 L=429.0' S=0.0284 '/' Capacity=39.80 cfs Outflow=0.13 cfs 0.100 af

Reach 16R: WOODS Avg. Flow Depth=0.01' Max Vel=0.03 fps Inflow=0.29 cfs 0.057 af
n=0.400 L=185.0' S=0.0227 '/' Capacity=35.56 cfs Outflow=0.09 cfs 0.056 af

Reach 17R: WOODS-2 Avg. Flow Depth=0.01' Max Vel=0.02 fps Inflow=0.09 cfs 0.041 af
n=0.400 L=474.0' S=0.0169 '/' Capacity=30.66 cfs Outflow=0.03 cfs 0.021 af

Reach 18R: WOODS-4 Avg. Flow Depth=0.03' Max Vel=0.02 fps Inflow=0.14 cfs 0.089 af
n=0.400 L=339.0' S=0.0059 '/' Capacity=18.13 cfs Outflow=0.08 cfs 0.017 af

Reach CB-A: TO DMH-X Avg. Flow Depth=0.50' Max Vel=4.46 fps Inflow=1.74 cfs 0.108 af
12.0" Round Pipe n=0.013 L=14.4' S=0.0097 '/' Capacity=3.51 cfs Outflow=1.73 cfs 0.108 af

Reach CB-B: TO DMH-A Avg. Flow Depth=0.30' Max Vel=3.52 fps Inflow=0.71 cfs 0.050 af
12.0" Round Pipe n=0.013 L=24.9' S=0.0100 '/' Capacity=3.57 cfs Outflow=0.71 cfs 0.050 af

Reach CB-D: TO DMH-B Avg. Flow Depth=0.23' Max Vel=3.57 fps Inflow=0.50 cfs 0.041 af
12.0" Round Pipe n=0.013 L=14.4' S=0.0139 '/' Capacity=4.20 cfs Outflow=0.50 cfs 0.041 af

Reach CB-E: TO DMH-B Avg. Flow Depth=0.14' Max Vel=4.08 fps Inflow=0.29 cfs 0.020 af
12.0" Round Pipe n=0.013 L=71.7' S=0.0317 '/' Capacity=6.34 cfs Outflow=0.28 cfs 0.020 af

Reach DCB-C: TO DMH-A Avg. Flow Depth=0.25' Max Vel=3.17 fps Inflow=0.49 cfs 0.040 af
12.0" Round Pipe n=0.013 L=24.9' S=0.0100 '/' Capacity=3.57 cfs Outflow=0.49 cfs 0.040 af

Reach DCB-F: (new Reach) Inflow=0.24 cfs 0.018 af
Outflow=0.24 cfs 0.018 af

Reach DCB1: TO DMH1 Avg. Flow Depth=0.31' Max Vel=4.83 fps Inflow=1.01 cfs 0.077 af
12.0" Round Pipe n=0.013 L=11.0' S=0.0182 '/' Capacity=4.80 cfs Outflow=1.01 cfs 0.077 af

Reach DCB2: TO DMH#1 Avg. Flow Depth=0.33' Max Vel=3.89 fps Inflow=0.89 cfs 0.063 af
12.0" Round Pipe n=0.013 L=18.0' S=0.0111 '/' Capacity=3.76 cfs Outflow=0.88 cfs 0.063 af

Reach DMH-A: TO DMH-D Avg. Flow Depth=0.48' Max Vel=3.15 fps Inflow=1.19 cfs 0.090 af
12.0" Round Pipe n=0.013 L=248.2' S=0.0050 '/' Capacity=2.52 cfs Outflow=1.13 cfs 0.090 af

Reach DMH-B: TO DMH-C Avg. Flow Depth=0.47' Max Vel=8.86 fps Inflow=3.23 cfs 0.276 af
12.0" Round Pipe n=0.013 L=114.3' S=0.0400 '/' Capacity=7.12 cfs Outflow=3.23 cfs 0.276 af

Reach DMH-C: TO S. BASIN Avg. Flow Depth=0.45' Max Vel=9.57 fps Inflow=3.23 cfs 0.276 af
12.0" Round Pipe n=0.013 L=189.0' S=0.0492 '/' Capacity=7.90 cfs Outflow=3.21 cfs 0.276 af

Reach DMH-D: TO DMH-B Avg. Flow Depth=0.47' Max Vel=6.56 fps Inflow=2.39 cfs 0.198 af
12.0" Round Pipe n=0.013 L=29.0' S=0.0224 '/' Capacity=5.33 cfs Outflow=2.38 cfs 0.198 af

Reach DMH1: TO DMH#2 Avg. Flow Depth=0.51' Max Vel=4.62 fps Inflow=1.87 cfs 0.140 af
12.0" Round Pipe n=0.013 L=215.0' S=0.0102 '/' Capacity=3.60 cfs Outflow=1.80 cfs 0.140 af

Reach DMH2: TO D.BASIN#13 Avg. Flow Depth=0.52' Max Vel=4.28 fps Inflow=1.80 cfs 0.140 af
12.0" Round Pipe n=0.013 L=220.0' S=0.0086 '/' Capacity=3.31 cfs Outflow=1.74 cfs 0.140 af

Reach DP1: DP#1 Inflow=4.77 cfs 1.385 af
Outflow=4.77 cfs 1.385 af

Reach DP12: DP12 Inflow=3.29 cfs 1.372 af
Outflow=3.29 cfs 1.372 af

Reach DP13: DP131 Inflow=3.80 cfs 0.467 af
Outflow=3.80 cfs 0.467 af

Reach DP14: DP14 Inflow=0.74 cfs 0.200 af
Outflow=0.74 cfs 0.200 af

Reach DP15: DP15 Inflow=1.85 cfs 0.147 af
Outflow=1.85 cfs 0.147 af

Reach DP16: DP16 Inflow=1.58 cfs 0.183 af
Outflow=1.58 cfs 0.183 af

Reach DP2: DP#2 Inflow=0.91 cfs 0.569 af
Outflow=0.91 cfs 0.569 af

Reach OL1: (new Reach) Avg. Flow Depth=0.01' Max Vel=0.10 fps Inflow=0.08 cfs 0.116 af
n=0.240 L=50.0' S=0.1200 '/' Capacity=222.51 cfs Outflow=0.08 cfs 0.114 af

Reach OL121: WOODS-4 Avg. Flow Depth=0.03' Max Vel=0.13 fps Inflow=0.58 cfs 0.313 af
n=0.400 L=40.0' S=0.1375 '/' Capacity=65.83 cfs Outflow=0.57 cfs 0.312 af

Reach OL122: WOODS-4 Avg. Flow Depth=0.05' Max Vel=0.04 fps Inflow=0.57 cfs 0.312 af
n=0.400 L=251.0' S=0.0060 '/' Capacity=18.25 cfs Outflow=0.42 cfs 0.276 af

Reach OL123: GRASS Avg. Flow Depth=0.07' Max Vel=0.22 fps Inflow=2.31 cfs 0.343 af
n=0.410 L=44.0' S=0.1364 '/' Capacity=63.96 cfs Outflow=2.29 cfs 0.343 af

Reach OL124: WOODS-4 Avg. Flow Depth=0.08' Max Vel=0.19 fps Inflow=2.29 cfs 0.343 af
n=0.400 L=64.0' S=0.0781 '/' Capacity=49.62 cfs Outflow=2.23 cfs 0.343 af

Reach OL125: WOODS-4 Avg. Flow Depth=0.07' Max Vel=0.05 fps Inflow=1.10 cfs 0.613 af
n=0.400 L=367.0' S=0.0068 '/' Capacity=19.48 cfs Outflow=0.71 cfs 0.537 af

Reach OL126: WOODS-4 Avg. Flow Depth=0.09' Max Vel=0.06 fps Inflow=2.23 cfs 0.343 af
n=0.400 L=185.0' S=0.0081 '/' Capacity=21.25 cfs Outflow=1.10 cfs 0.337 af

Reach OL141: WOODS Avg. Flow Depth=0.01' Max Vel=0.05 fps Inflow=0.08 cfs 0.116 af
n=0.400 L=261.0' S=0.0996 '/' Capacity=23.36 cfs Outflow=0.08 cfs 0.100 af

Reach OL142: WOODS Avg. Flow Depth=0.01' Max Vel=0.04 fps Inflow=0.08 cfs 0.100 af
n=0.400 L=116.0' S=0.0517 '/' Capacity=16.83 cfs Outflow=0.08 cfs 0.089 af

Reach SW1A: (new Reach) Avg. Flow Depth=0.14' Max Vel=1.43 fps Inflow=0.92 cfs 0.140 af
n=0.040 L=300.0' S=0.0225 '/' Capacity=125.94 cfs Outflow=0.90 cfs 0.140 af

Reach SW1B: (new Reach) Avg. Flow Depth=0.10' Max Vel=2.09 fps Inflow=0.90 cfs 0.140 af
n=0.040 L=255.0' S=0.0749 '/' Capacity=229.79 cfs Outflow=0.89 cfs 0.140 af

Reach SW2A: (new Reach) Avg. Flow Depth=0.16' Max Vel=1.35 fps Inflow=1.00 cfs 0.314 af
n=0.040 L=118.0' S=0.0169 '/' Capacity=109.31 cfs Outflow=1.00 cfs 0.314 af

Reach WETLAND: WETLAND Inflow=0.13 cfs 0.151 af
Outflow=0.13 cfs 0.151 af

Pond DB1: TO DP#1 Peak Elev=818.53' Storage=6,923 cf Inflow=2.14 cfs 0.199 af
Primary=0.04 cfs 0.060 af Secondary=0.00 cfs 0.000 af Outflow=0.04 cfs 0.060 af

Pond DB11: TO WETLAND Peak Elev=883.34' Storage=19,137 cf Inflow=1.17 cfs 0.525 af
Primary=0.08 cfs 0.116 af Secondary=0.00 cfs 0.000 af Outflow=0.08 cfs 0.116 af

Pond DB12: TO DP12 Peak Elev=885.05' Storage=4,502 cf Inflow=2.16 cfs 0.355 af
Primary=0.58 cfs 0.313 af Secondary=0.00 cfs 0.000 af Outflow=0.58 cfs 0.313 af

Pond DB13: TO DP#12 Peak Elev=893.10' Storage=3,226 cf Inflow=4.03 cfs 0.371 af
Primary=2.31 cfs 0.343 af Secondary=0.00 cfs 0.000 af Outflow=2.31 cfs 0.343 af

Pond DB14: TO DP#14 Peak Elev=903.03' Storage=2,598 cf Inflow=1.41 cfs 0.118 af
Primary=0.08 cfs 0.116 af Secondary=0.00 cfs 0.000 af Outflow=0.08 cfs 0.116 af

Pond DB2: TO DP#1 Peak Elev=808.73' Storage=7,931 cf Inflow=6.55 cfs 0.616 af
Primary=2.95 cfs 0.483 af Secondary=0.00 cfs 0.000 af Outflow=2.95 cfs 0.483 af

Pond DB3: TO DP#2 Peak Elev=856.02' Storage=83 cf Inflow=0.31 cfs 0.057 af
Primary=0.29 cfs 0.057 af Secondary=0.00 cfs 0.000 af Outflow=0.29 cfs 0.057 af

Pond DB4: TO DP#2 Peak Elev=888.01' Storage=60 cf Inflow=0.18 cfs 0.042 af
Primary=0.16 cfs 0.042 af Secondary=0.00 cfs 0.000 af Outflow=0.16 cfs 0.042 af

Pond DB5: TO DP#2 Peak Elev=866.02' Storage=22 cf Inflow=0.22 cfs 0.041 af
Primary=0.22 cfs 0.041 af Secondary=0.00 cfs 0.000 af Outflow=0.22 cfs 0.041 af

Pond SB1: TO DB#11 Peak Elev=885.98' Storage=1,416 cf Inflow=1.00 cfs 0.314 af
Primary=0.69 cfs 0.298 af Secondary=0.00 cfs 0.000 af Outflow=0.69 cfs 0.298 af

Pond SB1-OLD: TO DP#2 Peak Elev=880.69' Storage=5,116 cf Inflow=3.21 cfs 0.310 af
Outflow=1.99 cfs 0.208 af

Total Runoff Area = 129.013 ac Runoff Volume = 5.892 af Average Runoff Depth = 0.55"
98.69% Pervious = 127.322 ac 1.31% Impervious = 1.691 ac

Summary for Subcatchment P11: TO DP #1

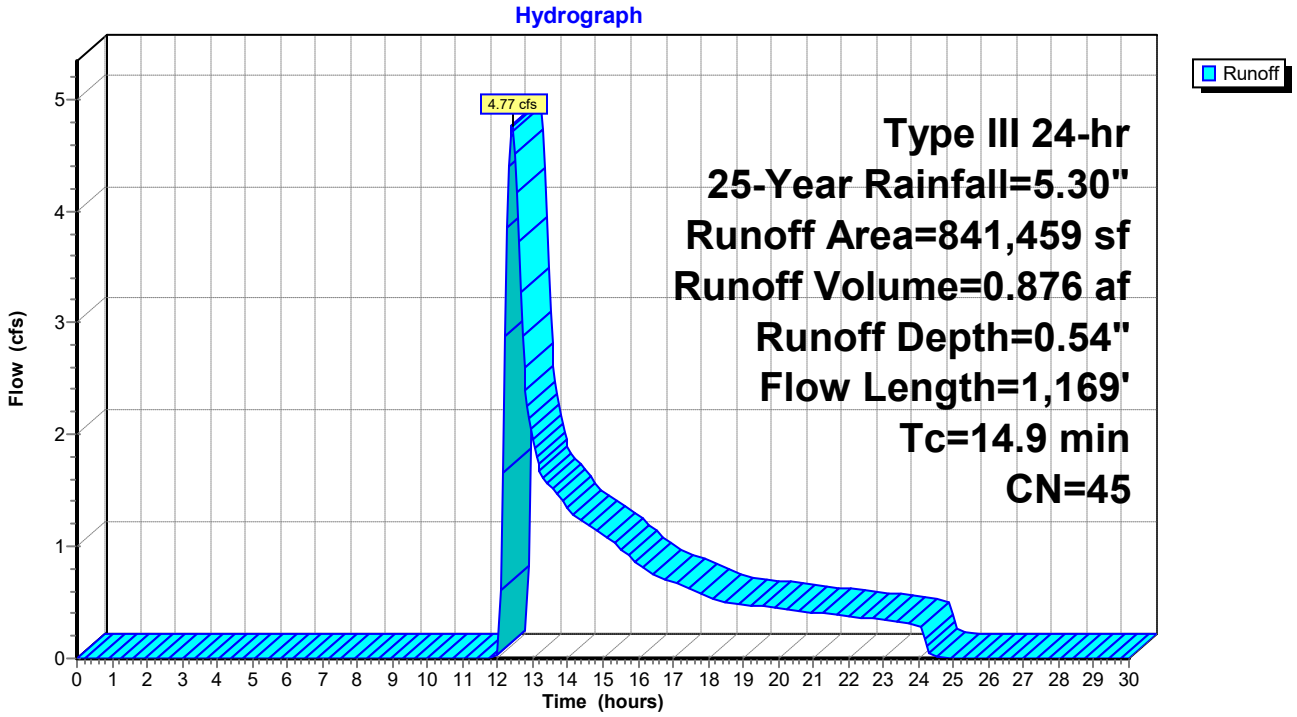
Runoff = 4.77 cfs @ 12.41 hrs, Volume= 0.876 af, Depth= 0.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.30"

Area (sf)	CN	Description
56,851	39	>75% Grass cover, Good, HSG A
81,519	30	Brush, Good, HSG A
427,679	30	Woods, Good, HSG A
45,535	74	>75% Grass cover, Good, HSG C
3,070	65	Brush, Good, HSG C
88,515	70	Woods, Good, HSG C
125,807	77	Woods, Good, HSG D
5,701	98	Paved parking, HSG B
6,782	61	>75% Grass cover, Good, HSG B
841,459	45	Weighted Average
835,758		99.32% Pervious Area
5,701		0.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.5	75	0.0830	0.27		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
1.3	361	0.0830	4.64		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
3.9	375	0.1010	1.59		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.4	144	0.1100	1.66		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.8	214	0.0350	0.94		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
14.9	1,169	Total			

Subcatchment P11: TO DP #1



Summary for Subcatchment P111: TO 1P

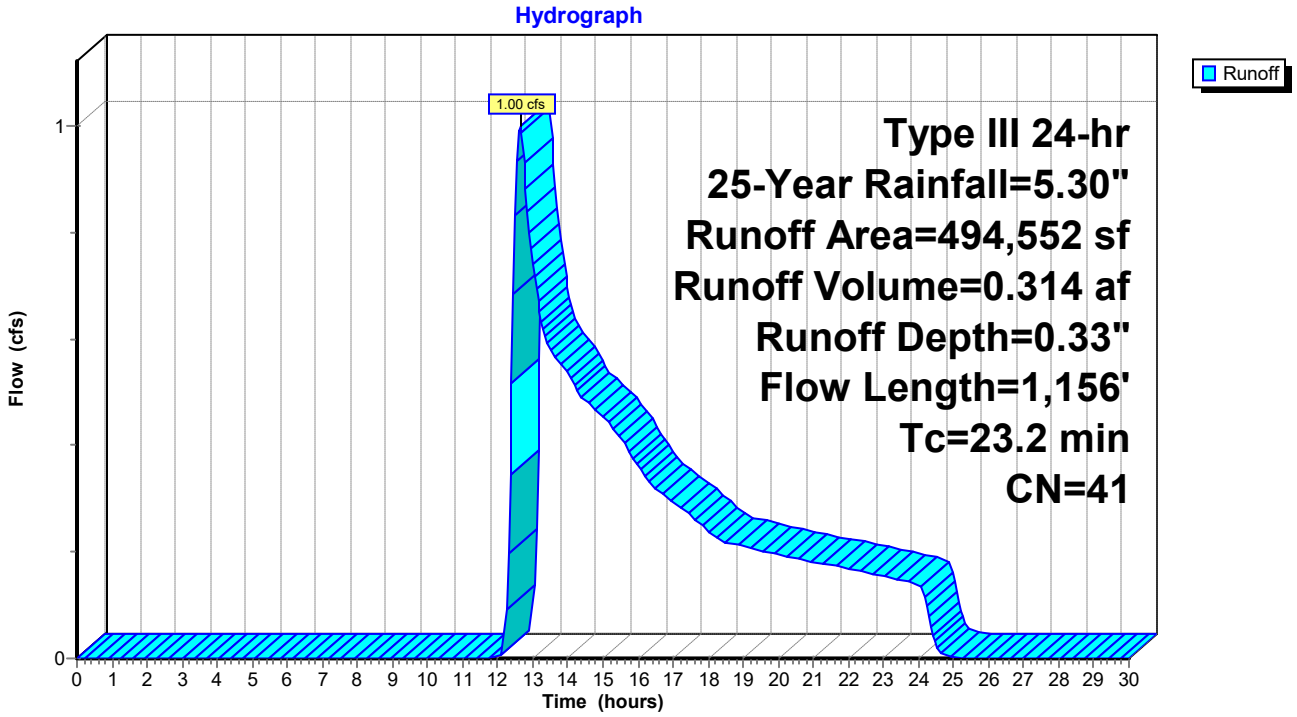
Runoff = 1.00 cfs @ 12.64 hrs, Volume= 0.314 af, Depth= 0.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.30"

Area (sf)	CN	Description
267,760	39	>75% Grass cover, Good, HSG A
146,825	30	Woods, Good, HSG A
8,905	98	Paved parking, HSG A
70,418	61	>75% Grass cover, Good, HSG B
644	98	Paved parking, HSG B
494,552	41	Weighted Average
485,003		98.07% Pervious Area
9,549		1.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	75	0.0480	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
4.2	245	0.0380	0.97		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.7	167	0.1080	1.64		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.6	113	0.0530	1.15		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.0	489	0.0290	2.74		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.2	50	0.0400	4.06		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	17	0.0590	3.91		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
23.2	1,156	Total			

Subcatchment P111: TO 1P



Summary for Subcatchment P112: TO DB11

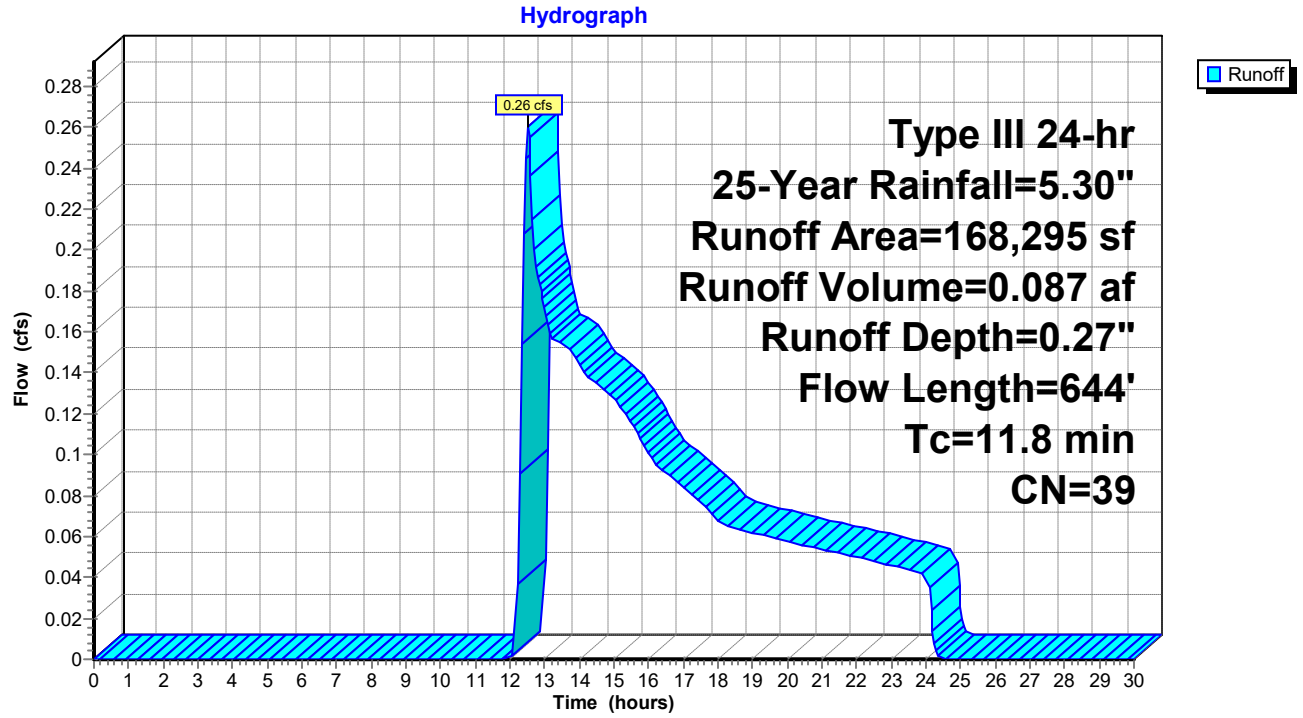
Runoff = 0.26 cfs @ 12.51 hrs, Volume= 0.087 af, Depth= 0.27"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.30"

Area (sf)	CN	Description
167,914	39	>75% Grass cover, Good, HSG A
281	98	Paved parking, HSG A
100	61	>75% Grass cover, Good, HSG B
168,295	39	Weighted Average
168,014		99.83% Pervious Area
281		0.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	75	0.0150	0.14		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.5	60	0.0150	1.97		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
2.3	491	0.0480	3.53		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.0	18	0.4440	10.73		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
11.8	644	Total			

Subcatchment P112: TO DB11



Summary for Subcatchment P113: TO DB11

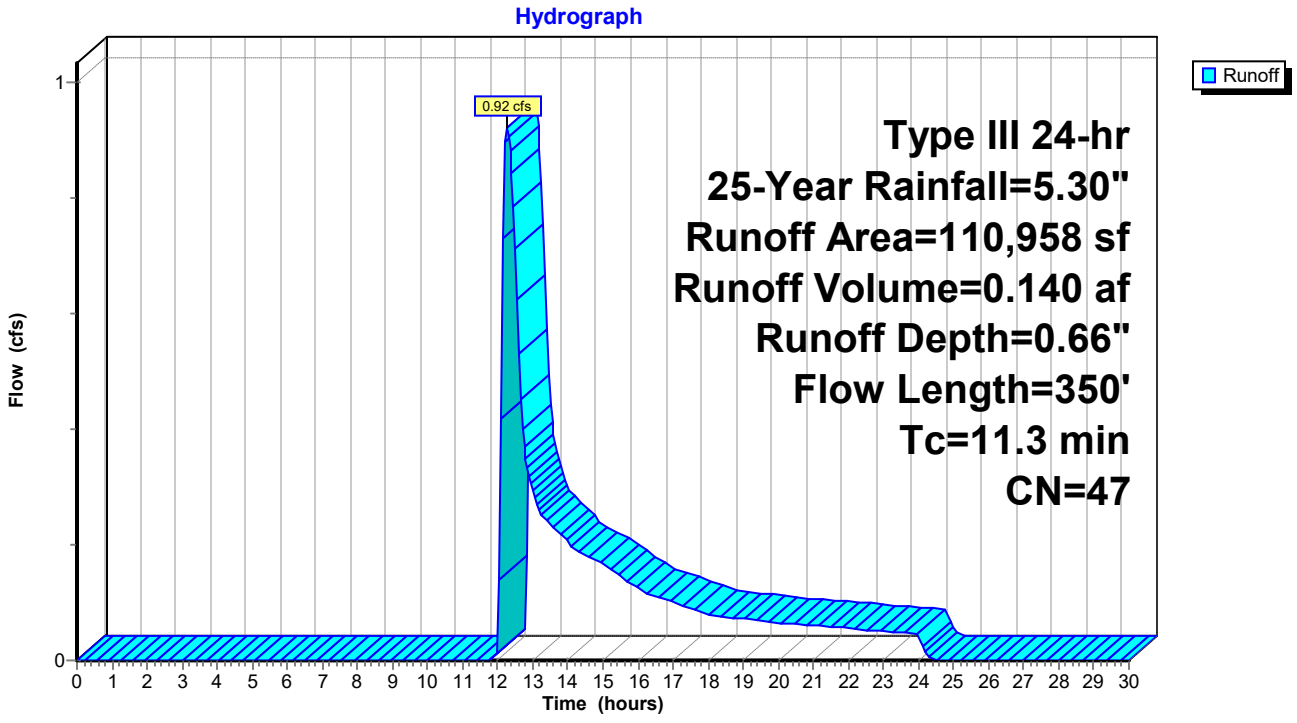
Runoff = 0.92 cfs @ 12.26 hrs, Volume= 0.140 af, Depth= 0.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.30"

Area (sf)	CN	Description
69,459	39	>75% Grass cover, Good, HSG A
41,499	61	>75% Grass cover, Good, HSG B
110,958	47	Weighted Average
110,958		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	75	0.0130	0.13		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.7	80	0.0130	1.84		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.0	195	0.0400	3.22		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
11.3	350	Total			

Subcatchment P113: TO DB11



Summary for Subcatchment P114: P114

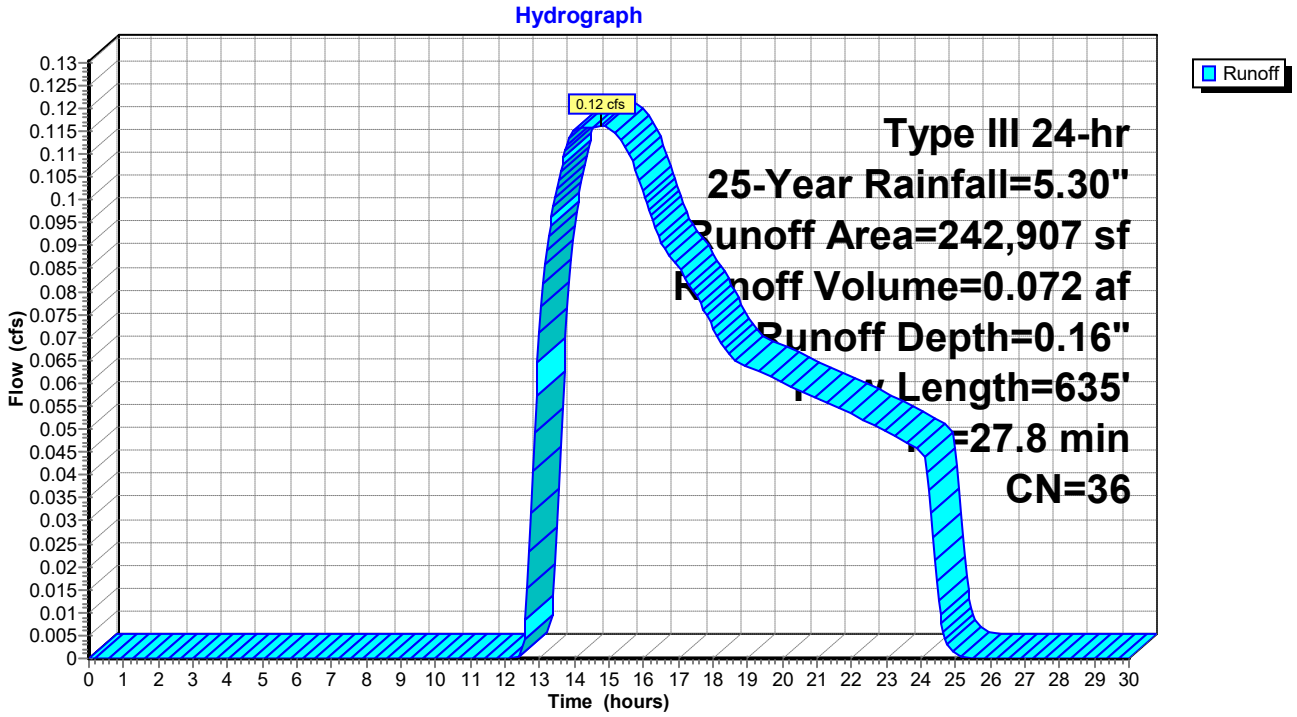
Runoff = 0.12 cfs @ 14.80 hrs, Volume= 0.072 af, Depth= 0.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.30"

Area (sf)	CN	Description
63,004	39	>75% Grass cover, Good, HSG A
157,080	30	Woods, Good, HSG A
1,859	61	>75% Grass cover, Good, HSG B
603	55	Woods, Good, HSG B
20,361	70	Woods, Good, HSG C
242,907	36	Weighted Average
242,907		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	75	0.0130	0.13		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.0	5	0.0130	1.84		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.1	30	0.0670	4.17		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.4	30	0.0670	1.29		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
4.5	244	0.0330	0.91		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
13.2	251	0.0040	0.32		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
27.8	635	Total			

Subcatchment P114: P114



Summary for Subcatchment P12: TO BASIN #2

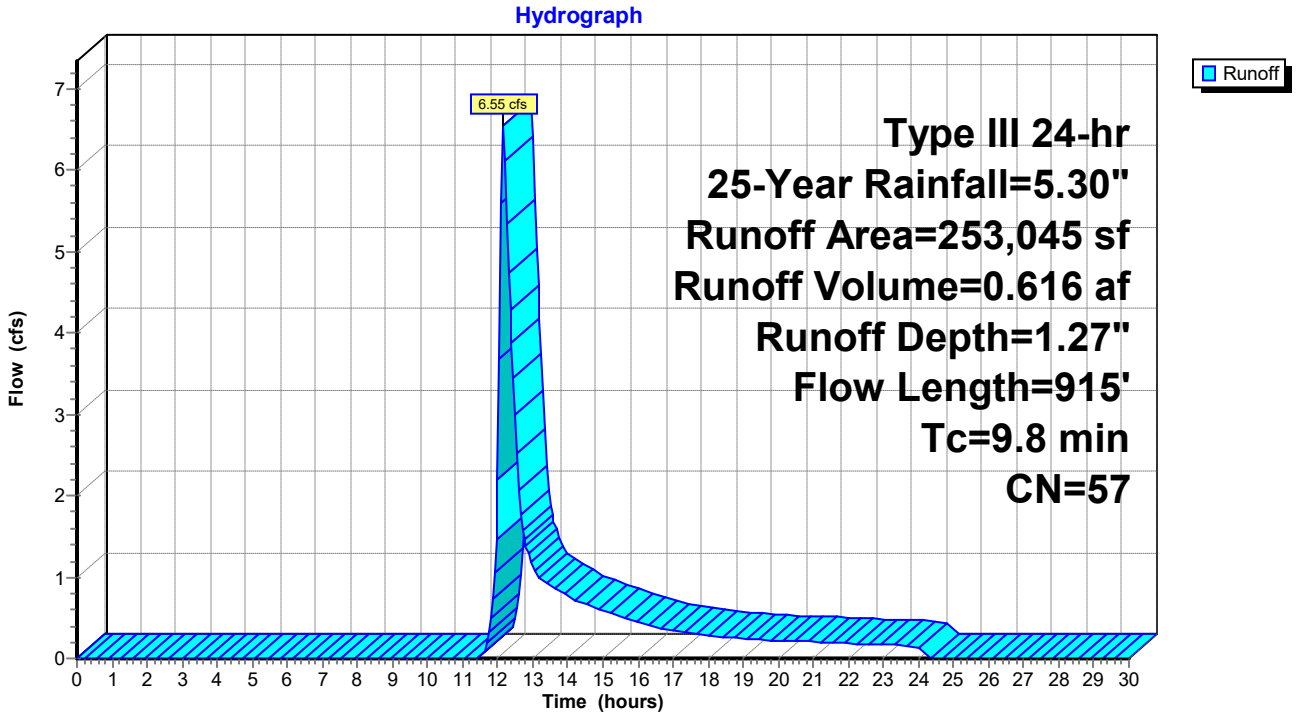
Runoff = 6.55 cfs @ 12.16 hrs, Volume= 0.616 af, Depth= 1.27"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.30"

Area (sf)	CN	Description
122,483	39	>75% Grass cover, Good, HSG A
1,193	76	Gravel roads, HSG A
129,369	74	>75% Grass cover, Good, HSG C
253,045	57	Weighted Average
253,045		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1	75	0.0690	0.18		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
0.0	12	0.0690	4.23		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.7	208	0.0860	4.72		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.0	18	0.3300	9.25		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.1	14	0.0100	1.61		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.4	77	0.0400	3.22		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.7	202	0.1000	5.09		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.8	309	0.1600	6.44		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
9.8	915	Total			

Subcatchment P12: TO BASIN #2



Summary for Subcatchment P121: TO DP12

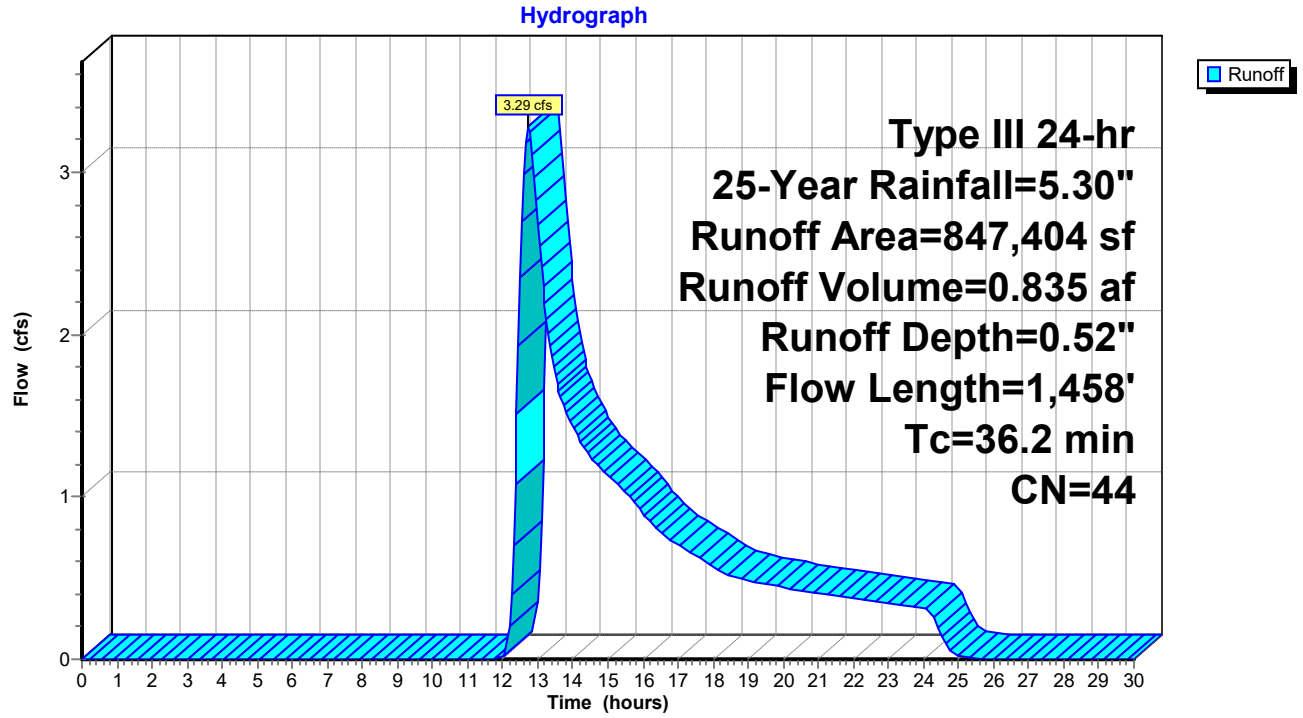
Runoff = 3.29 cfs @ 12.73 hrs, Volume= 0.835 af, Depth= 0.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.30"

Area (sf)	CN	Description
122,267	39	>75% Grass cover, Good, HSG A
308,952	30	Woods, Good, HSG A
129,820	61	>75% Grass cover, Good, HSG B
286,365	55	Woods, Good, HSG B
847,404	44	Weighted Average
847,404		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	75	0.0500	0.22		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
1.1	242	0.0500	3.60		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
8.7	601	0.0530	1.15		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
20.8	540	0.0075	0.43		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
36.2	1,458	Total			

Subcatchment P121: TO DP12



Summary for Subcatchment P122: TO DB12

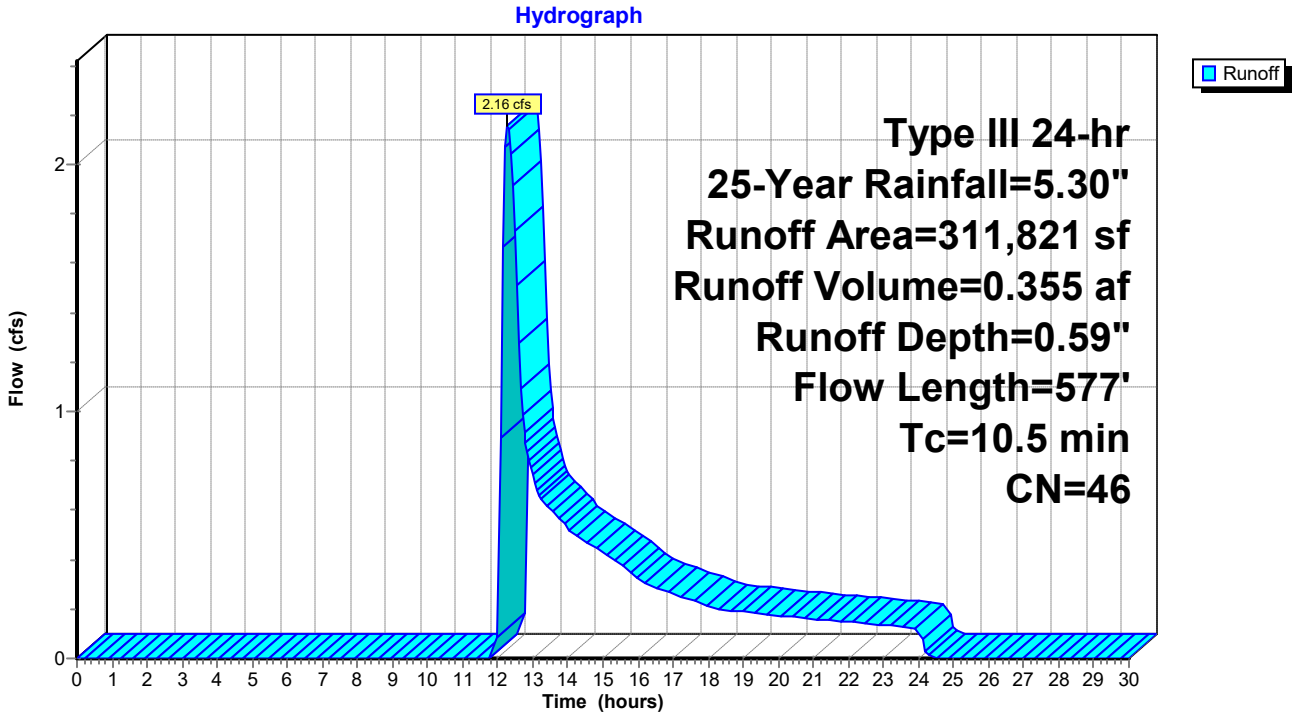
Runoff = 2.16 cfs @ 12.28 hrs, Volume= 0.355 af, Depth= 0.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.30"

Area (sf)	CN	Description
127,006	39	>75% Grass cover, Good, HSG A
60,526	30	Woods, Good, HSG A
124,289	61	>75% Grass cover, Good, HSG B
311,821	46	Weighted Average
311,821		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	75	0.0200	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.2	27	0.0200	2.28		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.4	90	0.0670	4.17		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.9	376	0.0400	3.22		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.0	9	0.3330	9.29		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
10.5	577	Total			

Subcatchment P122: TO DB12



Summary for Subcatchment P123: TO D.BASIN#13

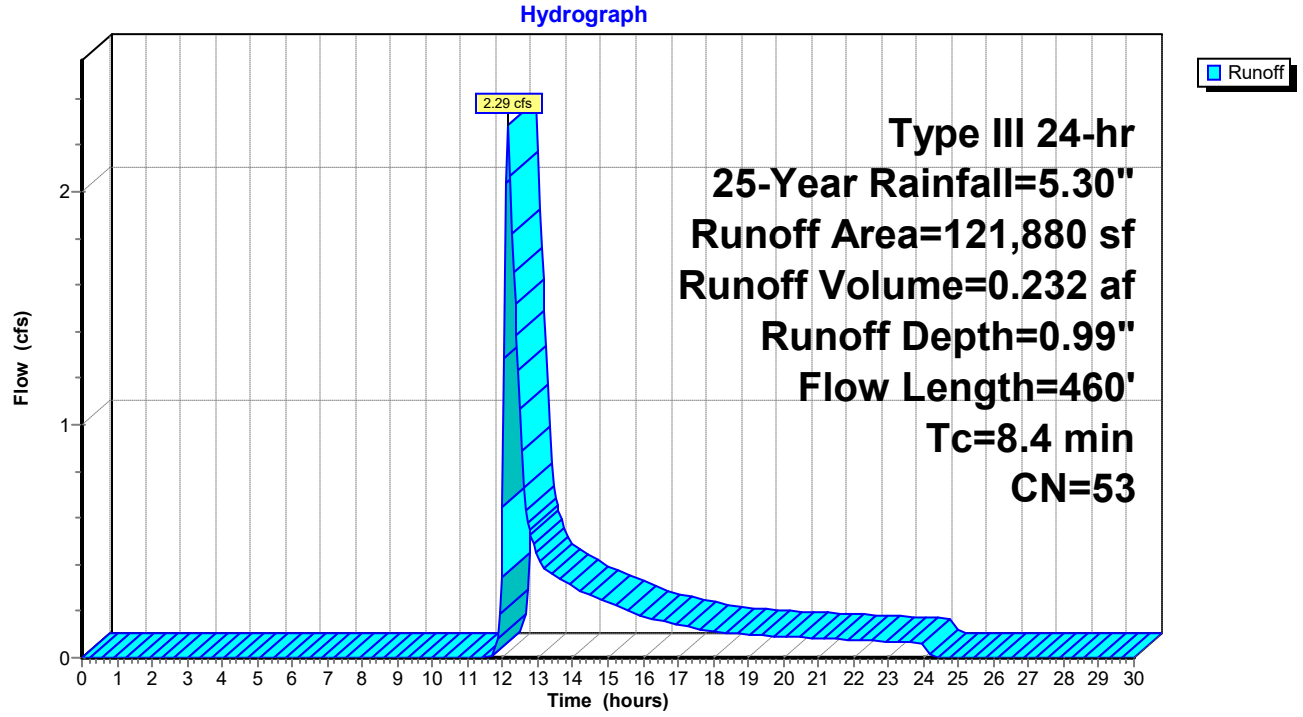
Runoff = 2.29 cfs @ 12.15 hrs, Volume= 0.232 af, Depth= 0.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.30"

Area (sf)	CN	Description
43,002	39	>75% Grass cover, Good, HSG A
70,744	61	>75% Grass cover, Good, HSG B
8,134	55	Woods, Good, HSG B
121,880	53	Weighted Average
121,880		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4	75	0.0360	0.20		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.0	8	0.0360	3.05		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.8	207	0.0670	4.17		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.2	170	0.0200	2.28		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
8.4	460	Total			

Subcatchment P123: TO D.BASIN#13



Summary for Subcatchment P13: TO BASIN#1

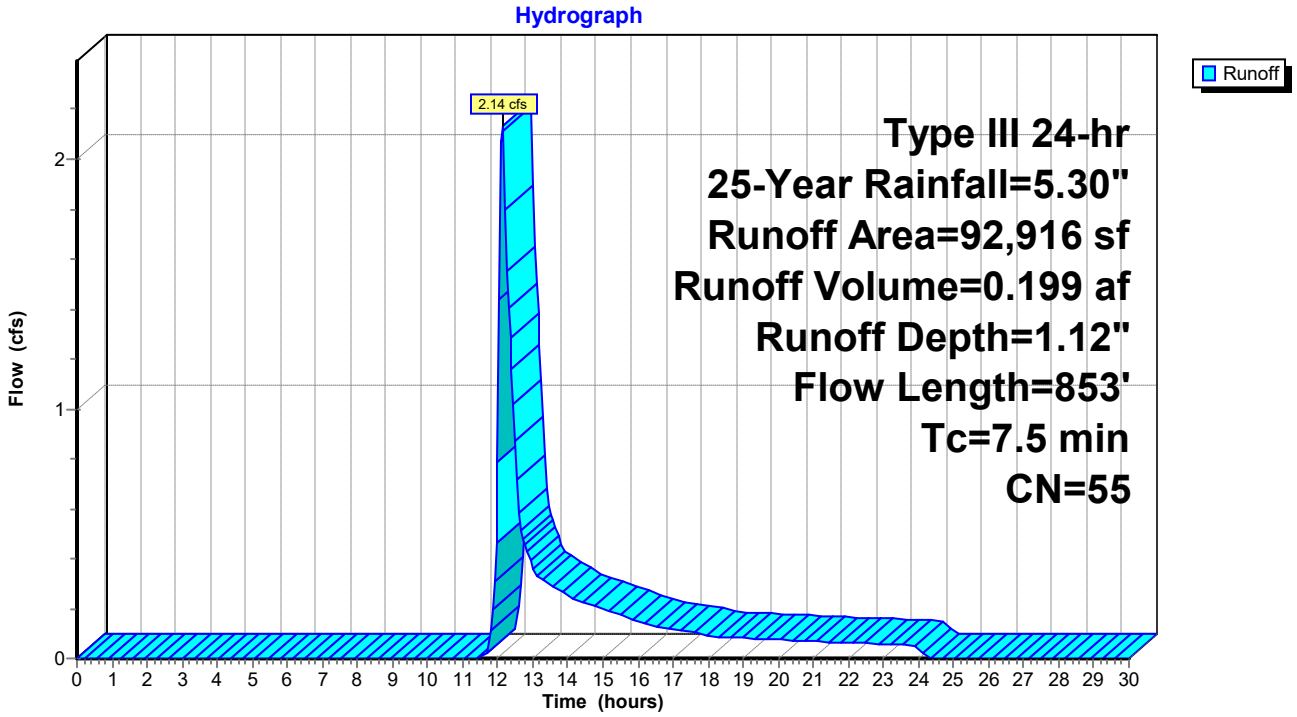
Runoff = 2.14 cfs @ 12.13 hrs, Volume= 0.199 af, Depth= 1.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.30"

Area (sf)	CN	Description
53,074	39	>75% Grass cover, Good, HSG A
13,231	76	Gravel roads, HSG A
23,298	74	>75% Grass cover, Good, HSG C
3,313	89	Gravel roads, HSG C
92,916	55	Weighted Average
92,916		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.9	75	0.0690	0.26		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.1	25	0.0690	4.23		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.7	200	0.1000	5.09		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.0	15	0.3300	9.25		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.2	37	0.0500	3.60		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.6	501	0.1000	5.09		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
7.5	853	Total			

Subcatchment P13: TO BASIN#1



Summary for Subcatchment P131: TO DP131

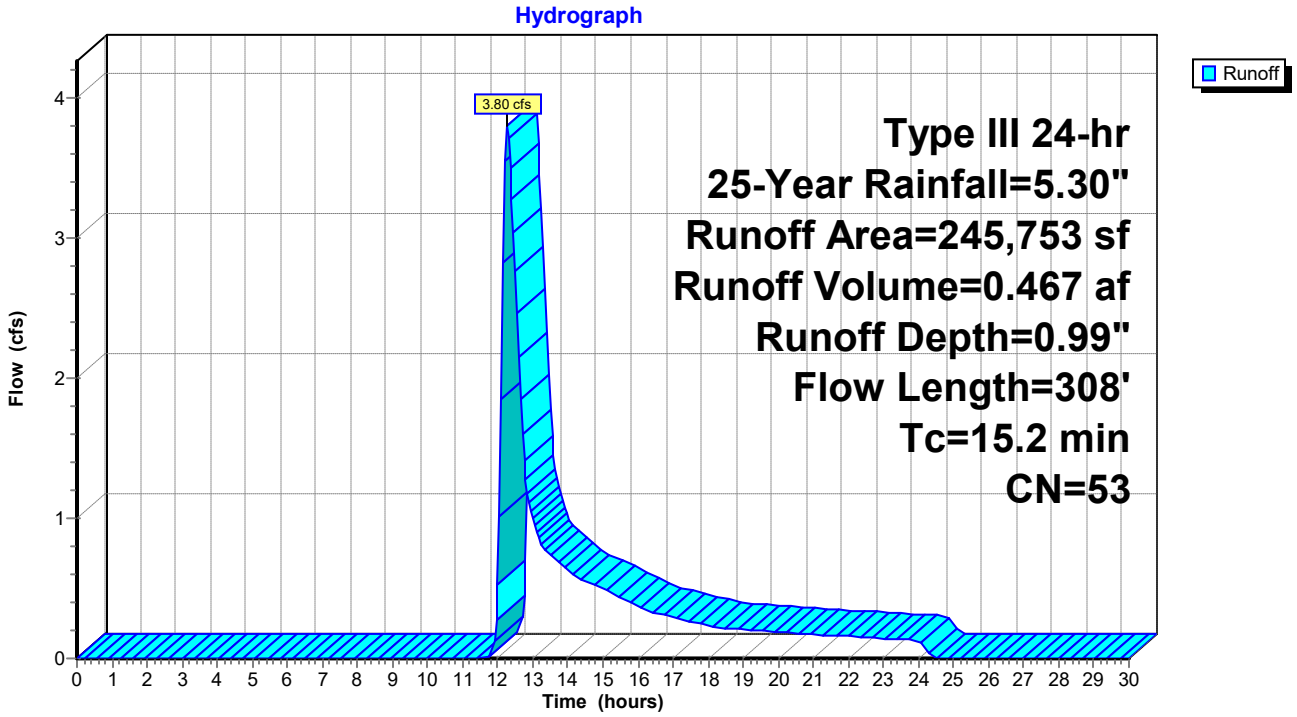
Runoff = 3.80 cfs @ 12.26 hrs, Volume= 0.467 af, Depth= 0.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.30"

Area (sf)	CN	Description
565	39	>75% Grass cover, Good, HSG A
3,137	30	Woods, Good, HSG A
5,000	61	>75% Grass cover, Good, HSG B
188,185	55	Woods, Good, HSG B
7,306	30	Brush, Good, HSG A
41,560	48	Brush, Good, HSG B
245,753	53	Weighted Average
245,753		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	10	0.0450	0.14		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
11.4	65	0.0450	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
0.3	17	0.0450	1.06		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.2	101	0.0800	1.41		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.1	115	0.1200	1.73		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.2	308	Total			

Subcatchment P131: TO DP131



Summary for Subcatchment P141: TO DP14

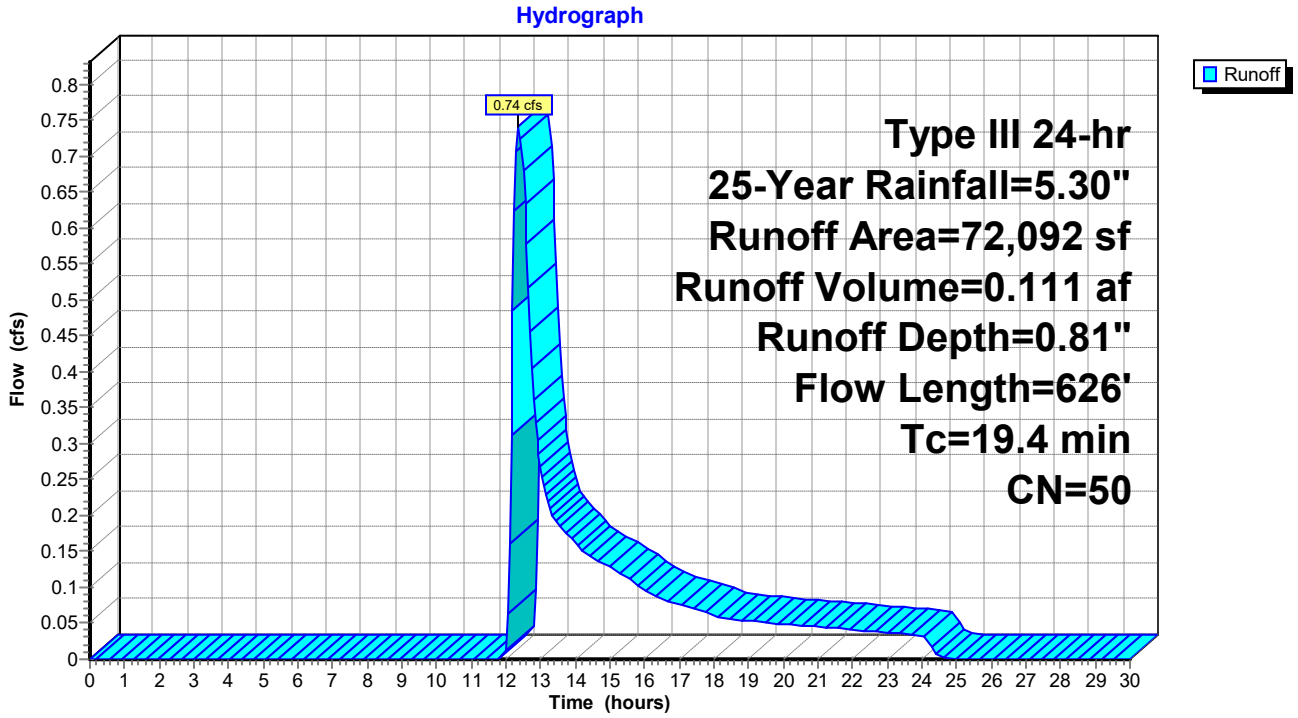
Runoff = 0.74 cfs @ 12.37 hrs, Volume= 0.111 af, Depth= 0.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.30"

Area (sf)	CN	Description
7,404	61	>75% Grass cover, Good, HSG B
46,382	55	Woods, Good, HSG B
4,366	39	>75% Grass cover, Good, HSG A
13,940	30	Woods, Good, HSG A
72,092	50	Weighted Average
72,092		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	75	0.0950	0.13		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
4.0	366	0.0950	1.54		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.5	69	0.1770	2.10		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
5.5	116	0.0050	0.35		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
19.4	626	Total			

Subcatchment P141: TO DP14



Summary for Subcatchment P142: TO D-BASIN#14

[49] Hint: Tc<2dt may require smaller dt

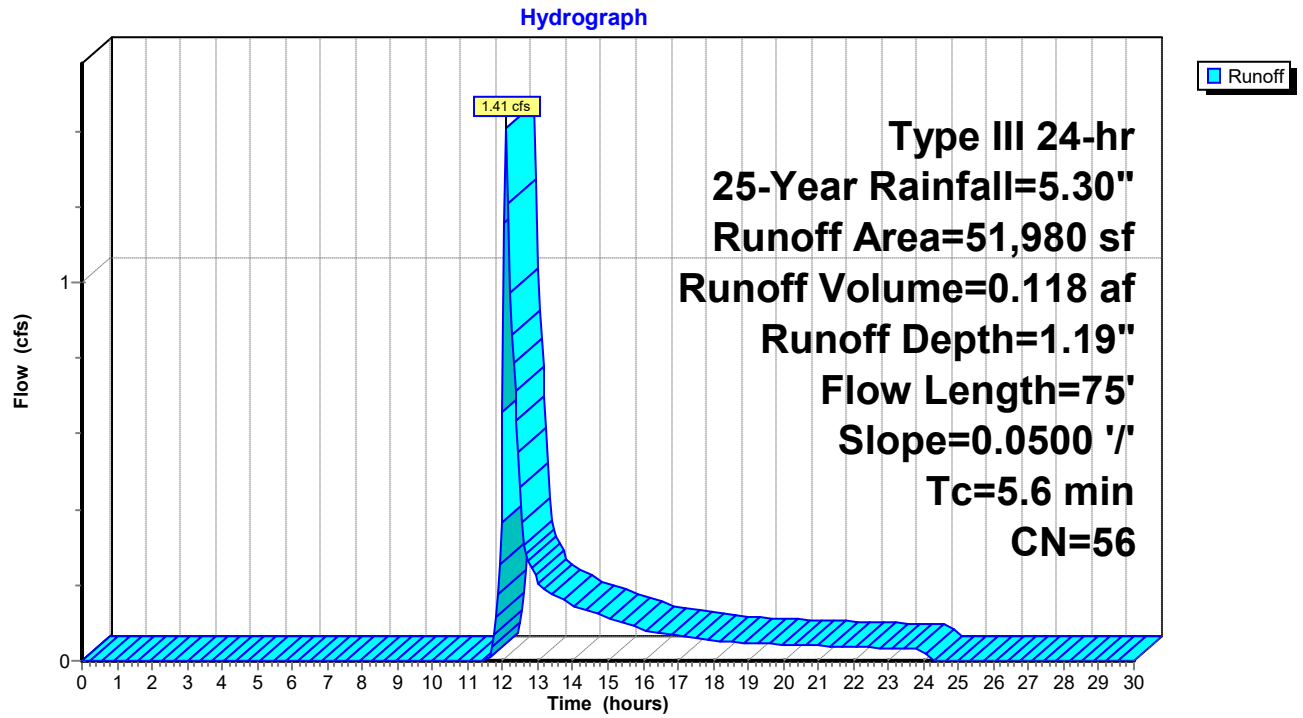
Runoff = 1.41 cfs @ 12.10 hrs, Volume= 0.118 af, Depth= 1.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.30"

Area (sf)	CN	Description
12,322	39	>75% Grass cover, Good, HSG A
39,658	61	>75% Grass cover, Good, HSG B
51,980	56	Weighted Average
51,980		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	75	0.0500	0.22		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"

Subcatchment P142: TO D-BASIN#14



Summary for Subcatchment P151: TO DP15

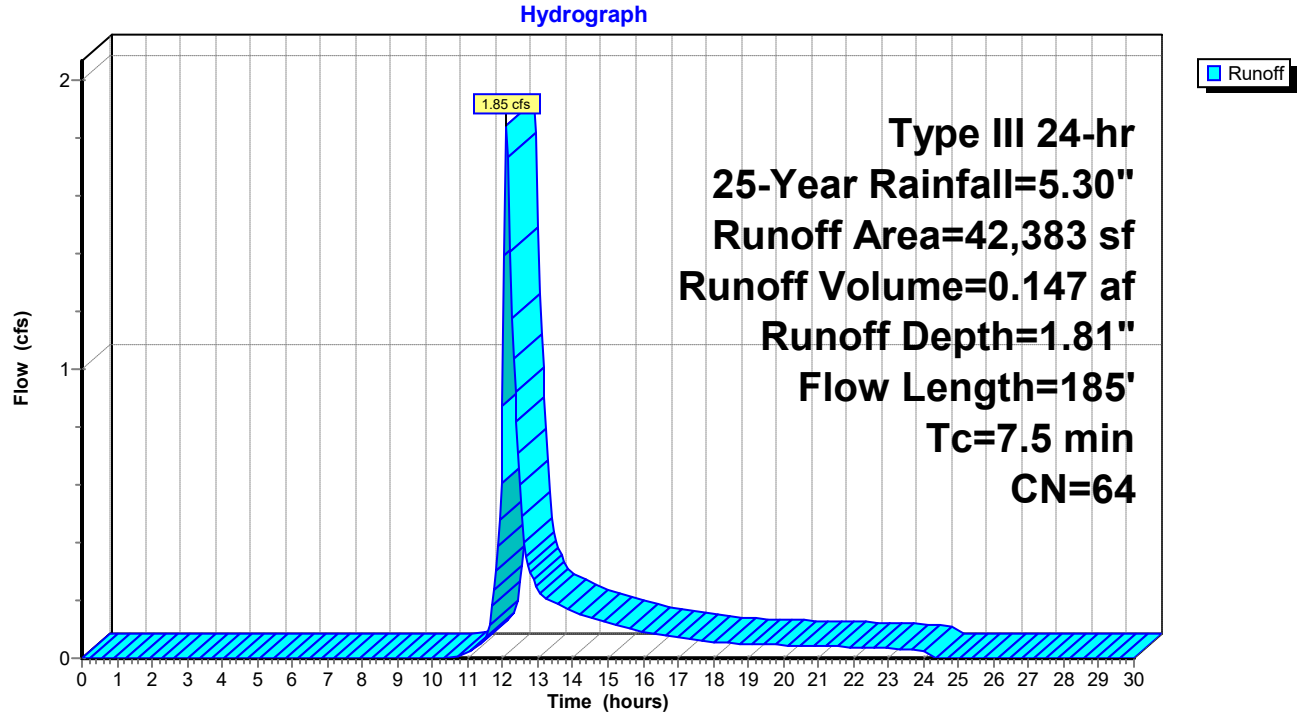
Runoff = 1.85 cfs @ 12.12 hrs, Volume= 0.147 af, Depth= 1.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.30"

Area (sf)	CN	Description
35,472	61	>75% Grass cover, Good, HSG B
2,601	55	Woods, Good, HSG B
4,310	98	Paved parking, HSG B
42,383	64	Weighted Average
38,073		89.83% Pervious Area
4,310		10.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.7	75	0.0320	0.19		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.3	50	0.0320	2.88		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.5	60	0.1670	2.04		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
7.5	185	Total			

Subcatchment P151: TO DP15



Summary for Subcatchment P161: TO DP16

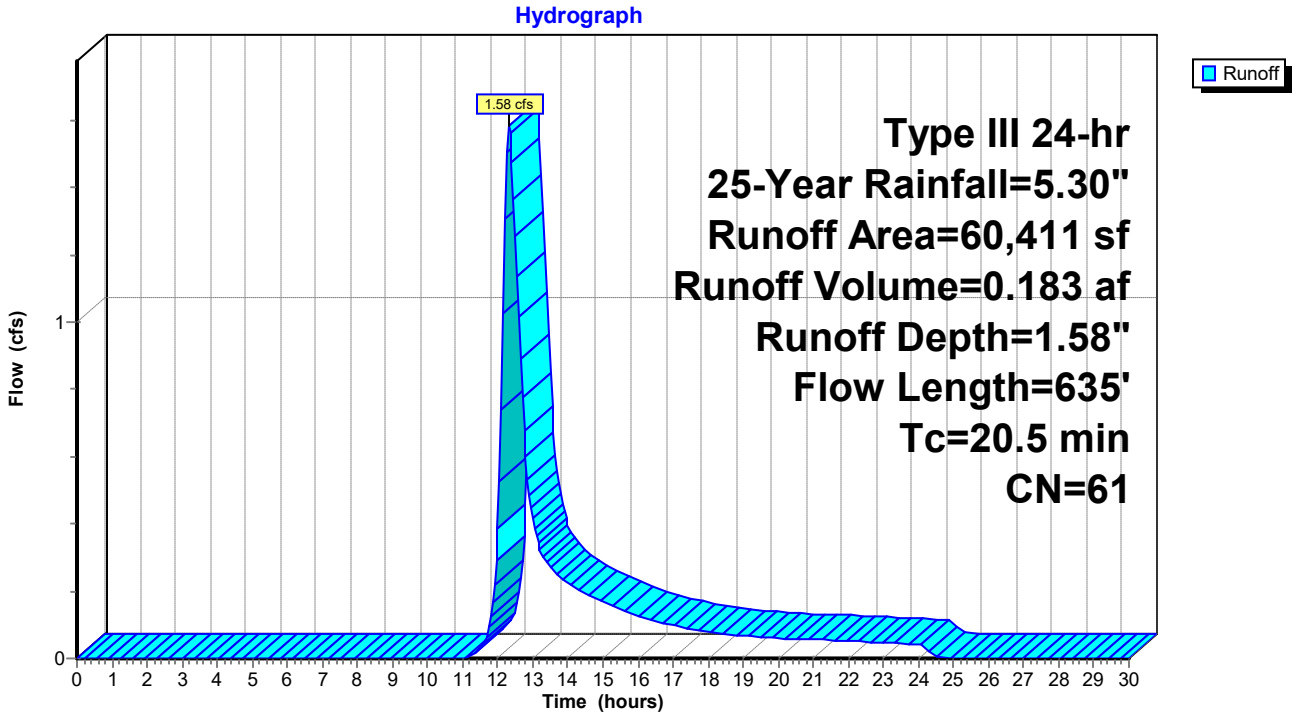
Runoff = 1.58 cfs @ 12.31 hrs, Volume= 0.183 af, Depth= 1.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.30"

Area (sf)	CN	Description
17,678	61	>75% Grass cover, Good, HSG B
36,188	55	Woods, Good, HSG B
6,545	98	Paved parking, HSG B
60,411	61	Weighted Average
53,866		89.17% Pervious Area
6,545		10.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.5	75	0.0470	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
5.9	326	0.0340	0.92		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.0	5	0.0430	4.21		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.0	179	0.0890	1.49		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.1	50	0.1800	8.61		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
20.5	635	Total			

Subcatchment P161: TO DP16



Summary for Subcatchment P21: TO DP#2

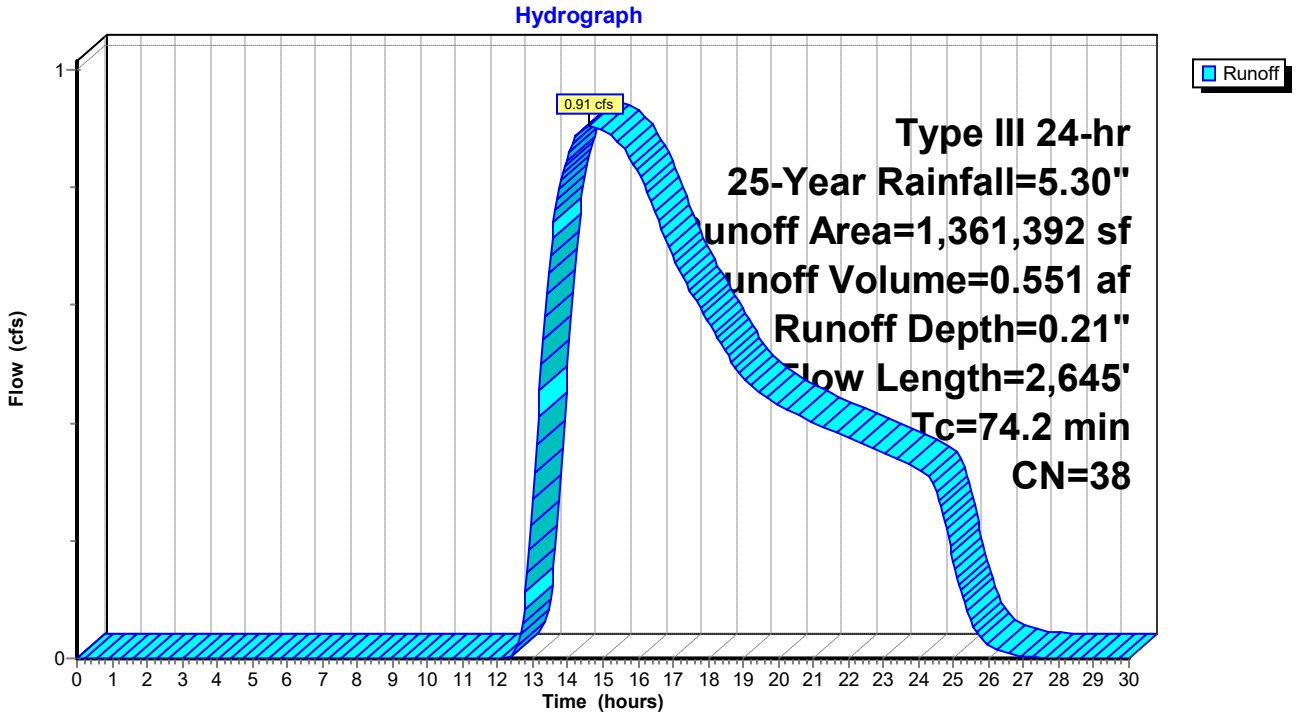
Runoff = 0.91 cfs @ 14.61 hrs, Volume= 0.551 af, Depth= 0.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.30"

Area (sf)	CN	Description
355,191	39	>75% Grass cover, Good, HSG A
803,291	30	Woods, Good, HSG A
19,791	76	Gravel roads, HSG A
9,527	98	Paved parking, HSG A
109,550	61	>75% Grass cover, Good, HSG B
40,873	70	Woods, Good, HSG C
23,169	55	Woods, Good, HSG B
1,361,392	38	Weighted Average
1,351,865		99.30% Pervious Area
9,527		0.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	75	0.1000	0.30		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.9	274	0.1000	5.09		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
6.7	400	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
14.5	475	0.0120	0.55		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
31.0	778	0.0070	0.42		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
16.9	643	0.0160	0.63		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
74.2	2,645	Total			

Subcatchment P21: TO DP#2



Summary for Subcatchment P21A: TO SB1

[49] Hint: Tc<2dt may require smaller dt

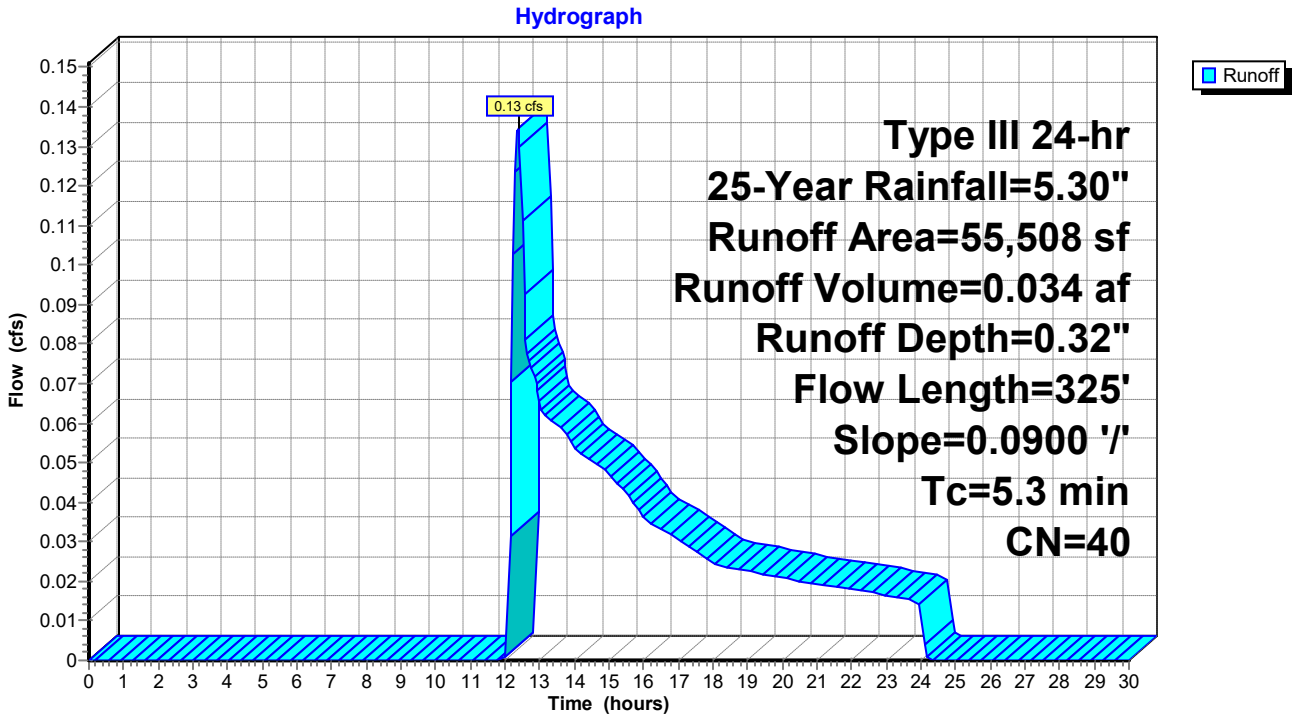
Runoff = 0.13 cfs @ 12.38 hrs, Volume= 0.034 af, Depth= 0.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.30"

Area (sf)	CN	Description
53,568	39	>75% Grass cover, Good, HSG A
1,940	76	Gravel roads, HSG A
55,508	40	Weighted Average
55,508		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	75	0.0900	0.28		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.9	250	0.0900	4.83		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
5.3	325	Total			

Subcatchment P21A: TO SB1



Summary for Subcatchment P21B: TO DCB-F

[49] Hint: Tc<2dt may require smaller dt

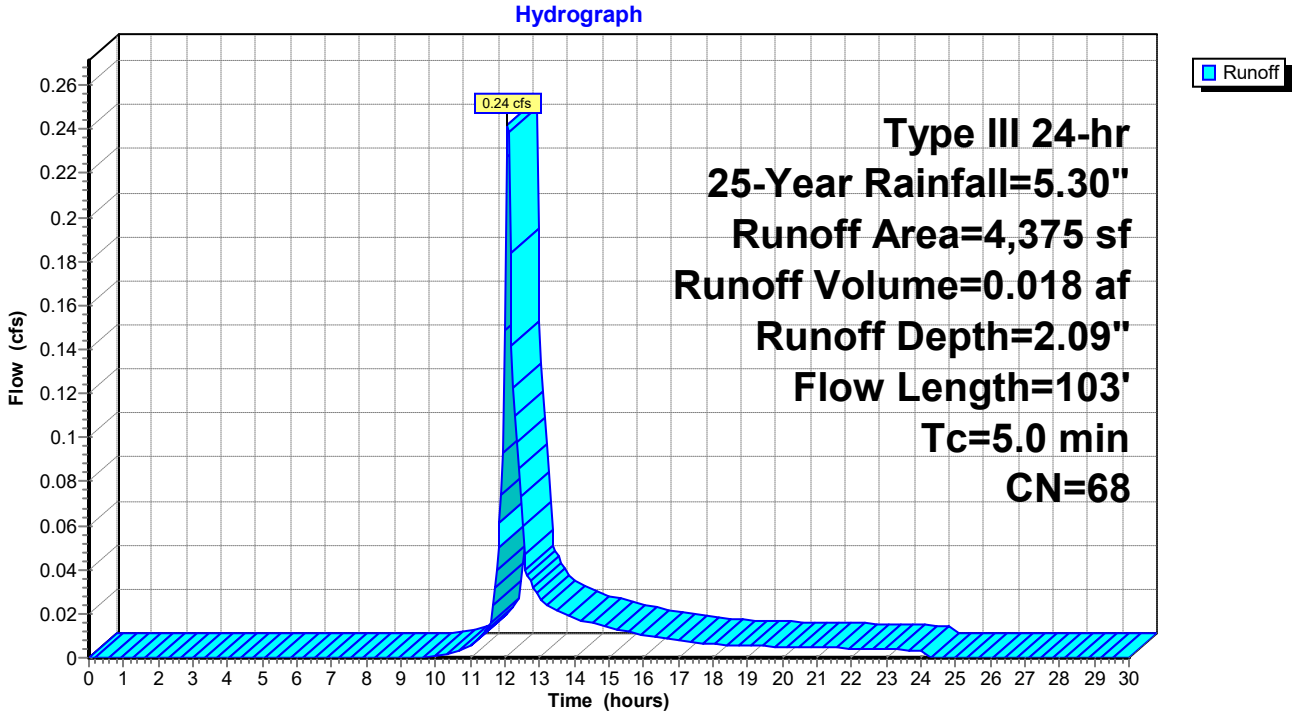
Runoff = 0.24 cfs @ 12.08 hrs, Volume= 0.018 af, Depth= 2.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.30"

Area (sf)	CN	Description
2,227	39	>75% Grass cover, Good, HSG A
2,148	98	Paved parking, HSG A
4,375	68	Weighted Average
2,227		50.90% Pervious Area
2,148		49.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	50	0.0100	0.88		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
0.2	19	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	34	0.0600	3.94		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.2	103	Total, Increased to minimum Tc = 5.0 min			

Subcatchment P21B: TO DCB-F



Summary for Subcatchment P22: TO BASIN#3

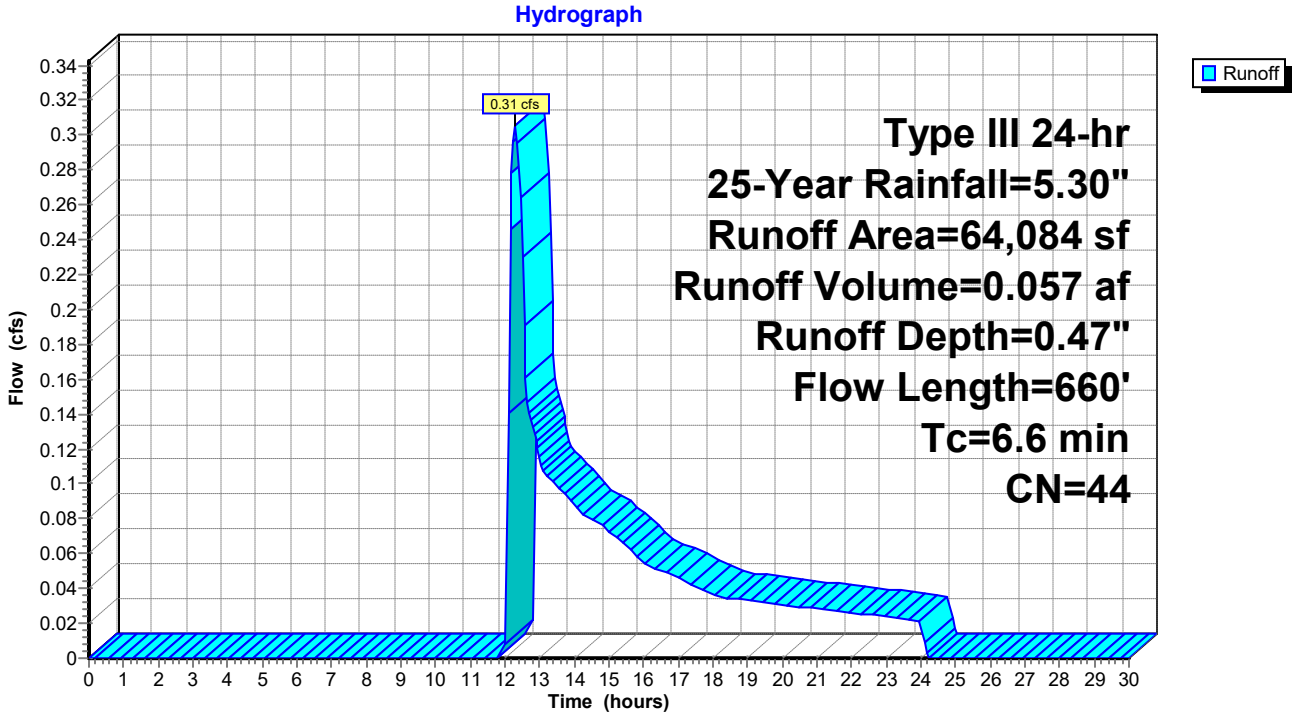
Runoff = 0.31 cfs @ 12.31 hrs, Volume= 0.057 af, Depth= 0.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.30"

Area (sf)	CN	Description
56,223	39	>75% Grass cover, Good, HSG A
7,861	76	Gravel roads, HSG A
64,084	44	Weighted Average
64,084		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	75	0.0800	0.27		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.4	110	0.0800	4.55		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.1	14	0.0200	2.28		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.5	461	0.1000	5.09		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
6.6	660	Total			

Subcatchment P22: TO BASIN#3



Summary for Subcatchment P23: TO BASIN #4

[49] Hint: Tc<2dt may require smaller dt

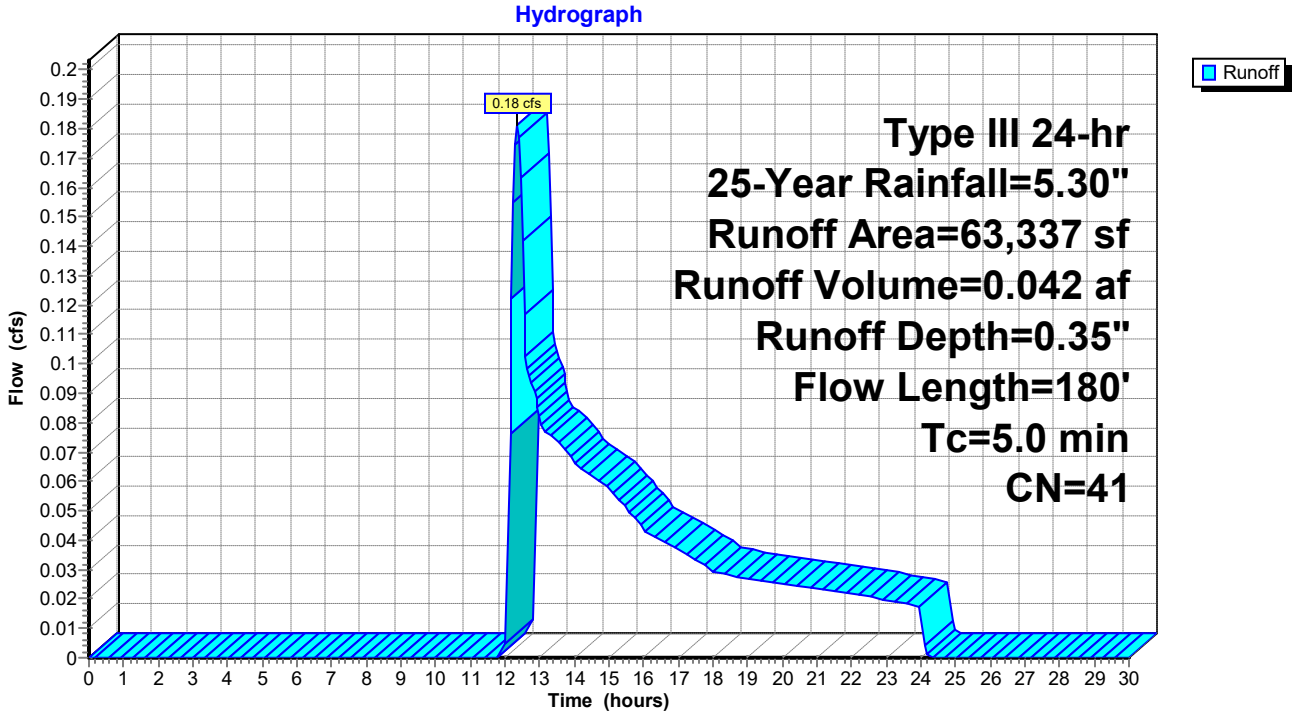
Runoff = 0.18 cfs @ 12.36 hrs, Volume= 0.042 af, Depth= 0.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.30"

Area (sf)	CN	Description
61,261	39	>75% Grass cover, Good, HSG A
2,076	98	Paved parking, HSG A
63,337	41	Weighted Average
61,261		96.72% Pervious Area
2,076		3.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	50	0.0200	1.16		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
0.0	26	0.3300	9.25		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.3	104	0.1000	5.09		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.0	180	Total, Increased to minimum Tc = 5.0 min			

Subcatchment P23: TO BASIN #4



Summary for Subcatchment P24: TO BASIN#5

[49] Hint: Tc<2dt may require smaller dt

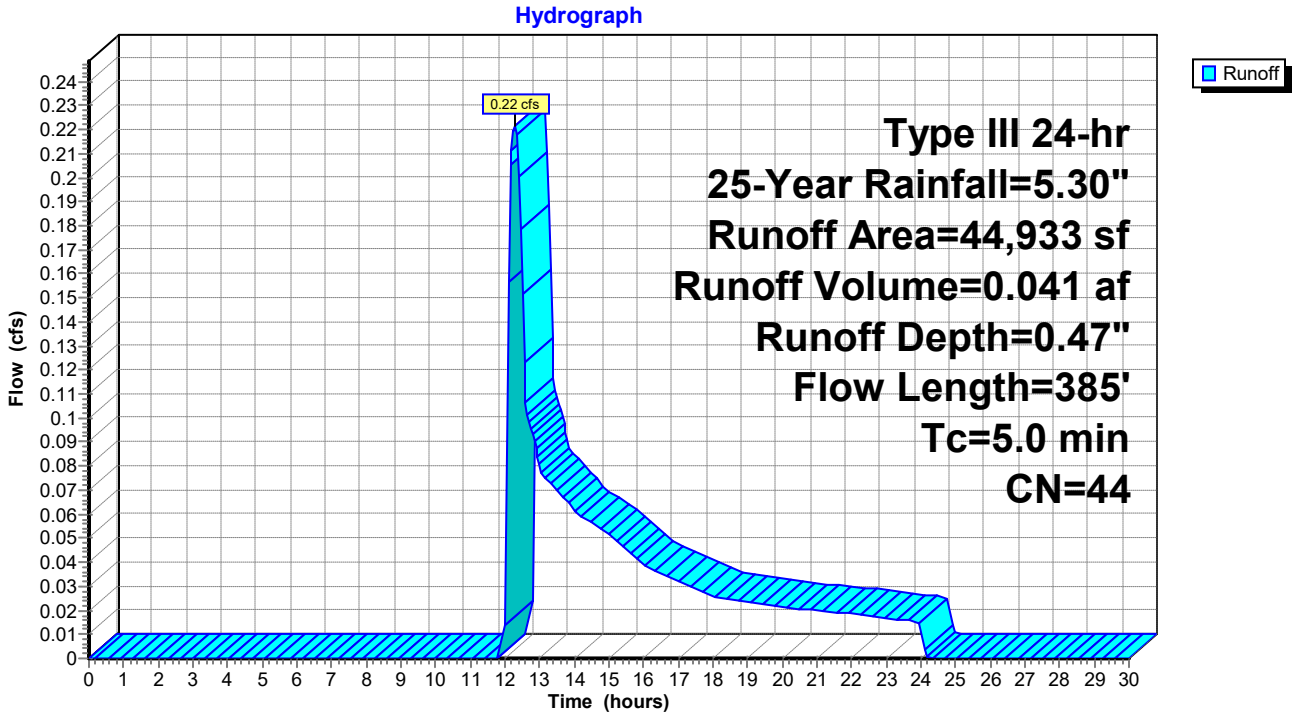
Runoff = 0.22 cfs @ 12.29 hrs, Volume= 0.041 af, Depth= 0.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.30"

Area (sf)	CN	Description
39,326	39	>75% Grass cover, Good, HSG A
2,324	76	Gravel roads, HSG A
1,422	98	Paved parking, HSG A
1,861	61	>75% Grass cover, Good, HSG B
44,933	44	Weighted Average
43,511		96.84% Pervious Area
1,422		3.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	50	0.0200	1.16		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
0.7	210	0.1000	5.09		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.1	14	0.0200	2.28		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.4	111	0.1000	5.09		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.9	385	Total, Increased to minimum Tc = 5.0 min			

Subcatchment P24: TO BASIN#5



Summary for Subcatchment P25: TO DCB-D

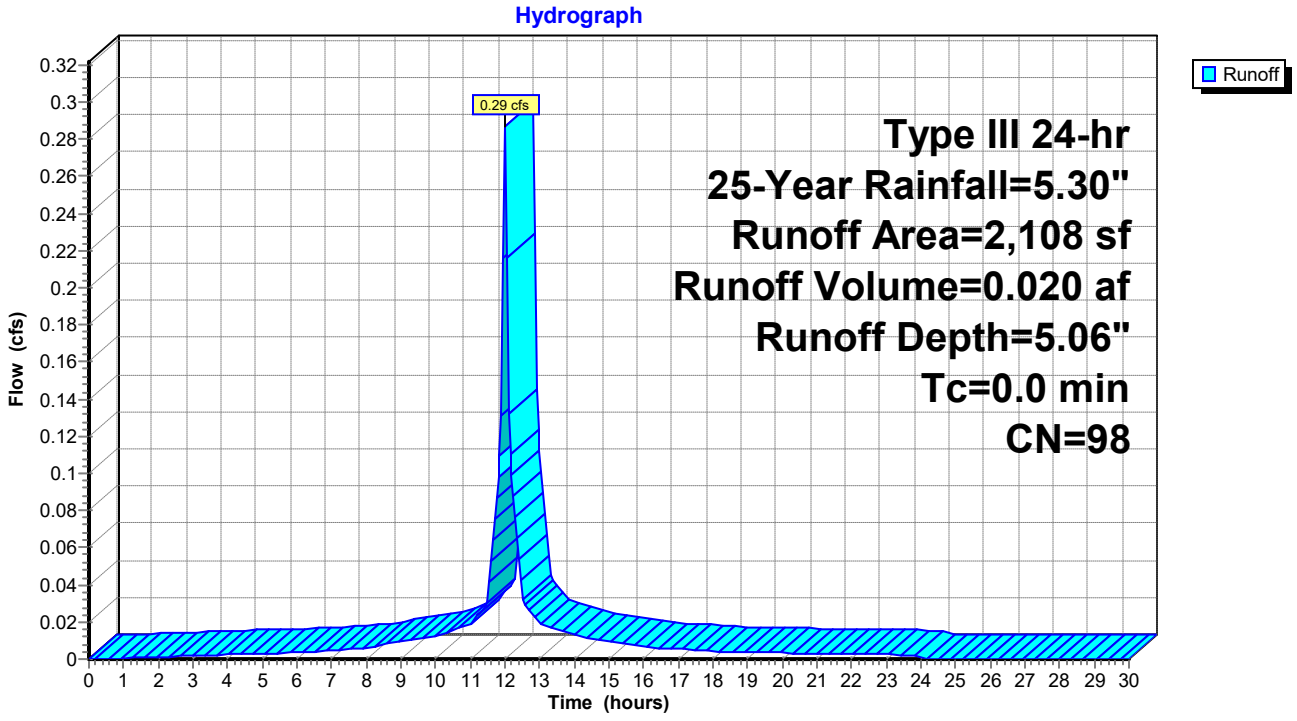
[46] Hint: Tc=0 (Instant runoff peak depends on dt)

Runoff = 0.29 cfs @ 12.00 hrs, Volume= 0.020 af, Depth= 5.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.30"

Area (sf)	CN	Description
2,108	98	Paved parking, HSG A
2,108		100.00% Impervious Area

Subcatchment P25: TO DCB-D



Summary for Subcatchment P26: TO DCB-A

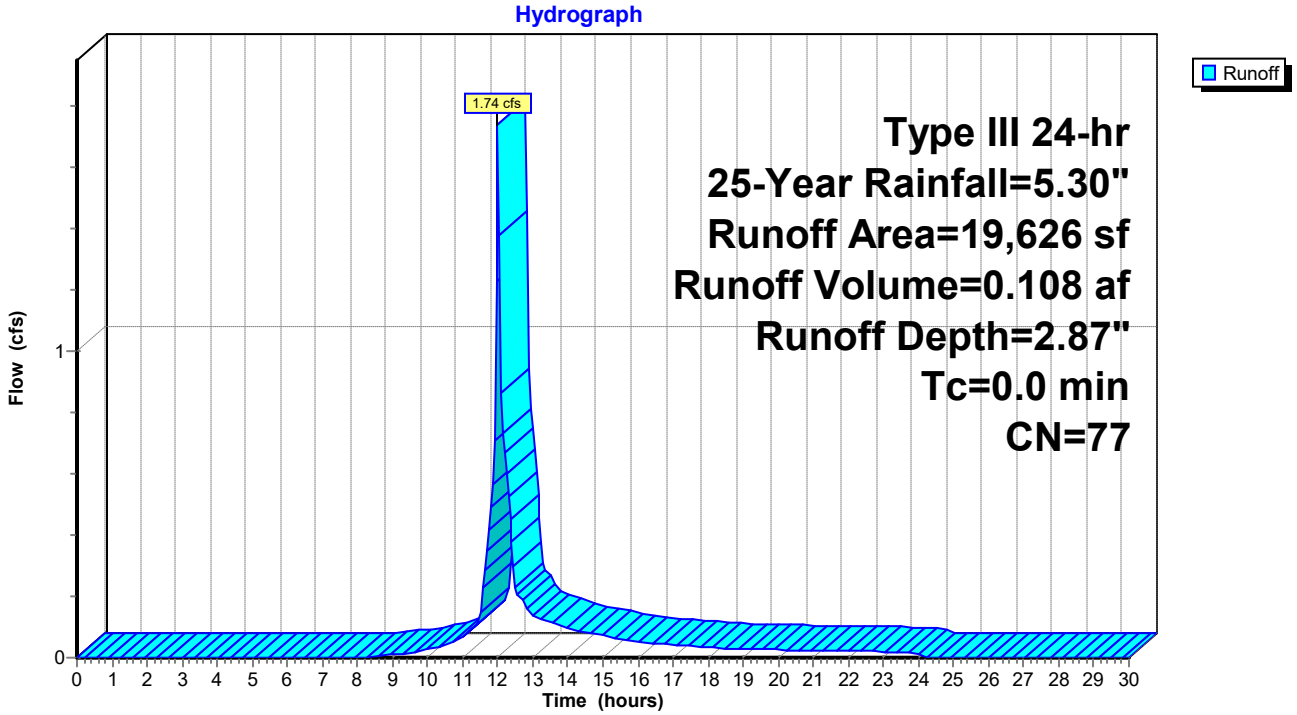
[46] Hint: Tc=0 (Instant runoff peak depends on dt)

Runoff = 1.74 cfs @ 12.00 hrs, Volume= 0.108 af, Depth= 2.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.30"

Area (sf)	CN	Description
8,453	98	Paved parking, HSG A
11,173	61	>75% Grass cover, Good, HSG B
19,626	77	Weighted Average
11,173		56.93% Pervious Area
8,453		43.07% Impervious Area

Subcatchment P26: TO DCB-A



Summary for Subcatchment P27: TO DCB-B

[49] Hint: Tc<2dt may require smaller dt

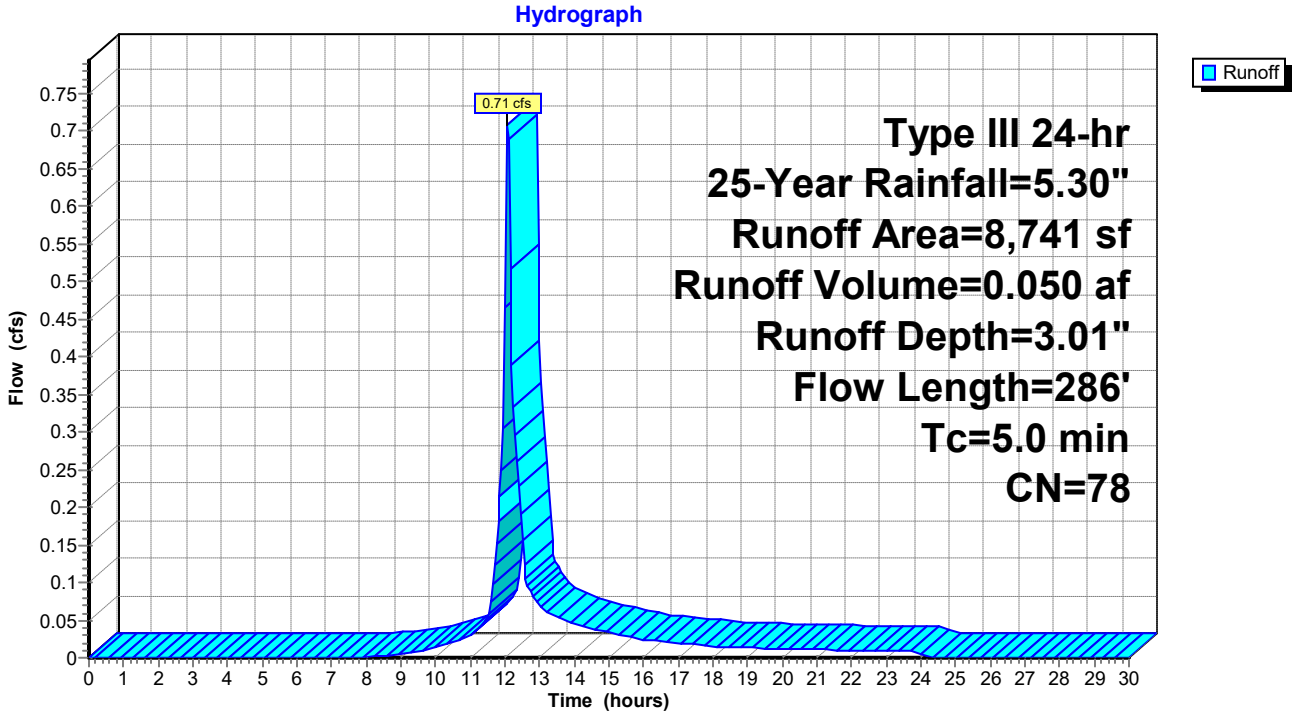
Runoff = 0.71 cfs @ 12.08 hrs, Volume= 0.050 af, Depth= 3.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.30"

Area (sf)	CN	Description
4,119	98	Paved parking, HSG A
4,622	61	>75% Grass cover, Good, HSG B
8,741	78	Weighted Average
4,622		52.88% Pervious Area
4,119		47.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	31	0.0200	1.05		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
0.4	19	0.0100	0.72		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
1.9	236	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.8	286	Total, Increased to minimum Tc = 5.0 min			

Subcatchment P27: TO DCB-B



Summary for Subcatchment P28: TO DCB-C

[49] Hint: Tc<2dt may require smaller dt

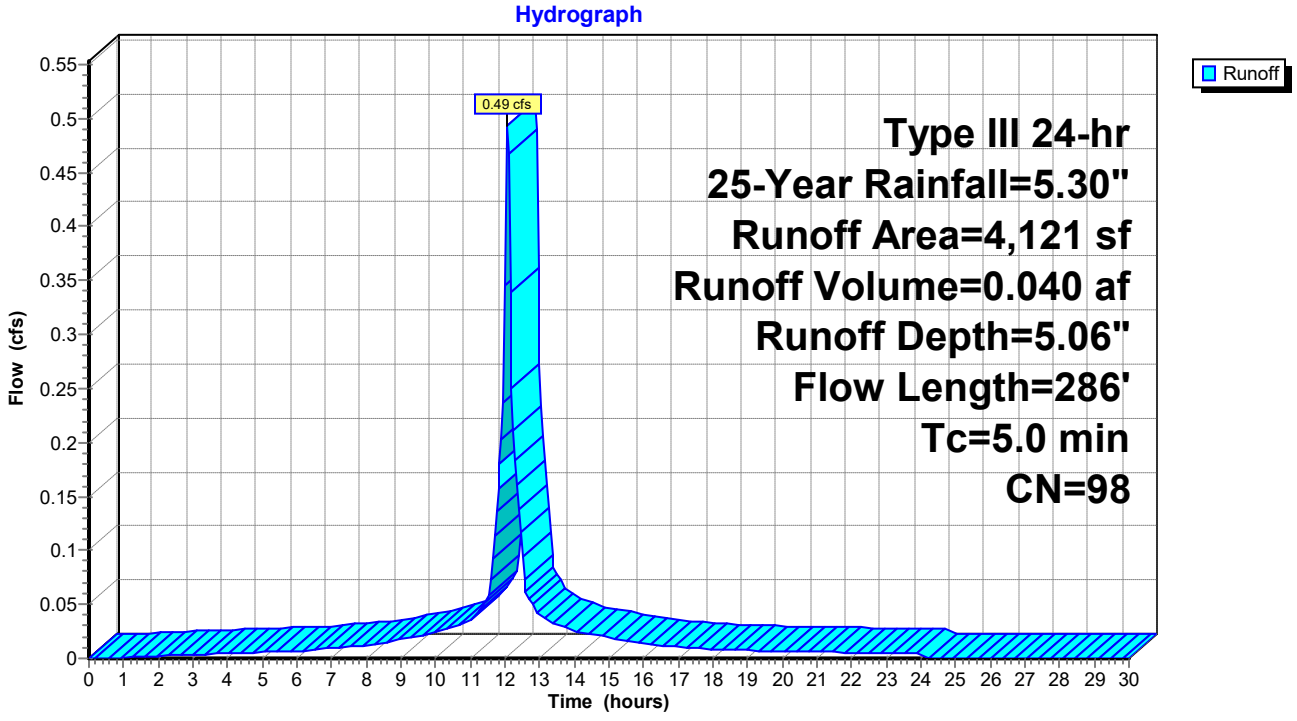
Runoff = 0.49 cfs @ 12.07 hrs, Volume= 0.040 af, Depth= 5.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.30"

Area (sf)	CN	Description
4,121	98	Paved parking, HSG A
4,121		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	31	0.0200	1.05		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
0.4	19	0.0100	0.72		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
1.9	236	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.8	286	Total, Increased to minimum Tc = 5.0 min			

Subcatchment P28: TO DCB-C



Summary for Subcatchment P29: TO DCB-D

[49] Hint: Tc<2dt may require smaller dt

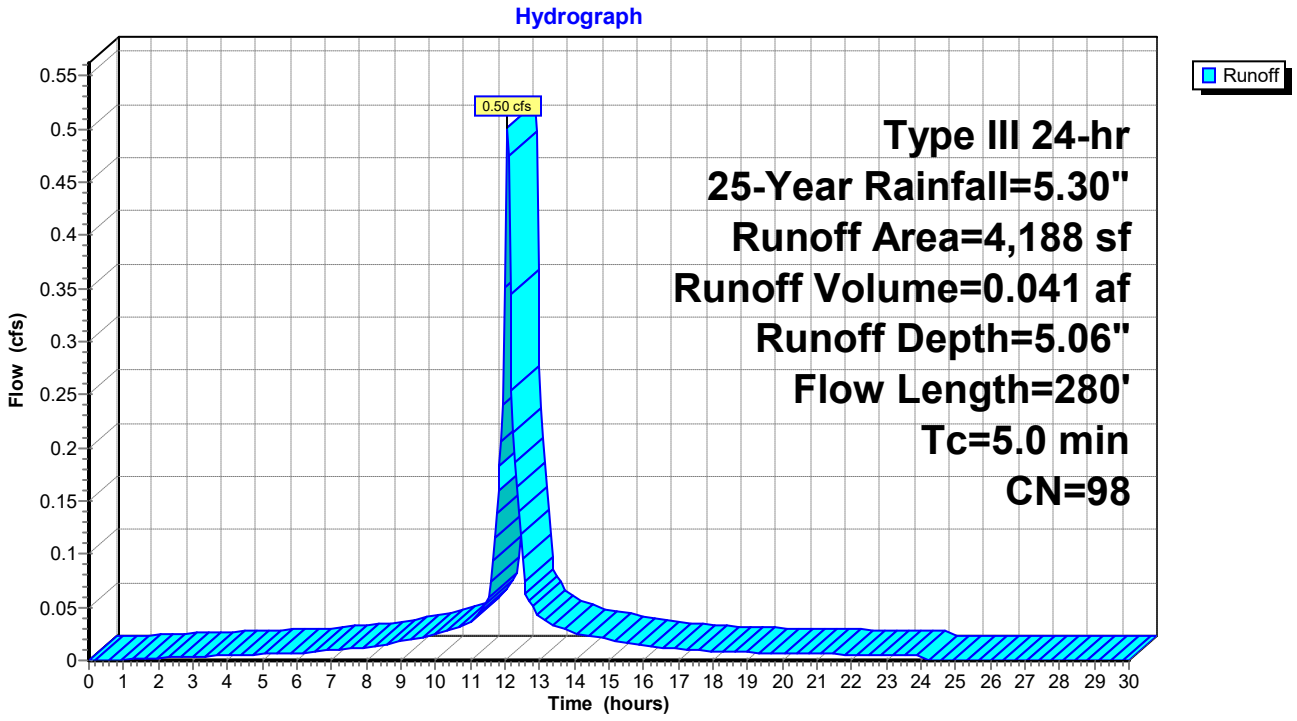
Runoff = 0.50 cfs @ 12.07 hrs, Volume= 0.041 af, Depth= 5.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.30"

Area (sf)	CN	Description
4,188	98	Paved parking, HSG A
4,188		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	21	0.0200	0.97		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
0.6	29	0.0100	0.79		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
1.9	230	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.9	280	Total, Increased to minimum Tc = 5.0 min			

Subcatchment P29: TO DCB-D



Summary for Subcatchment PS1: TO DCB#1

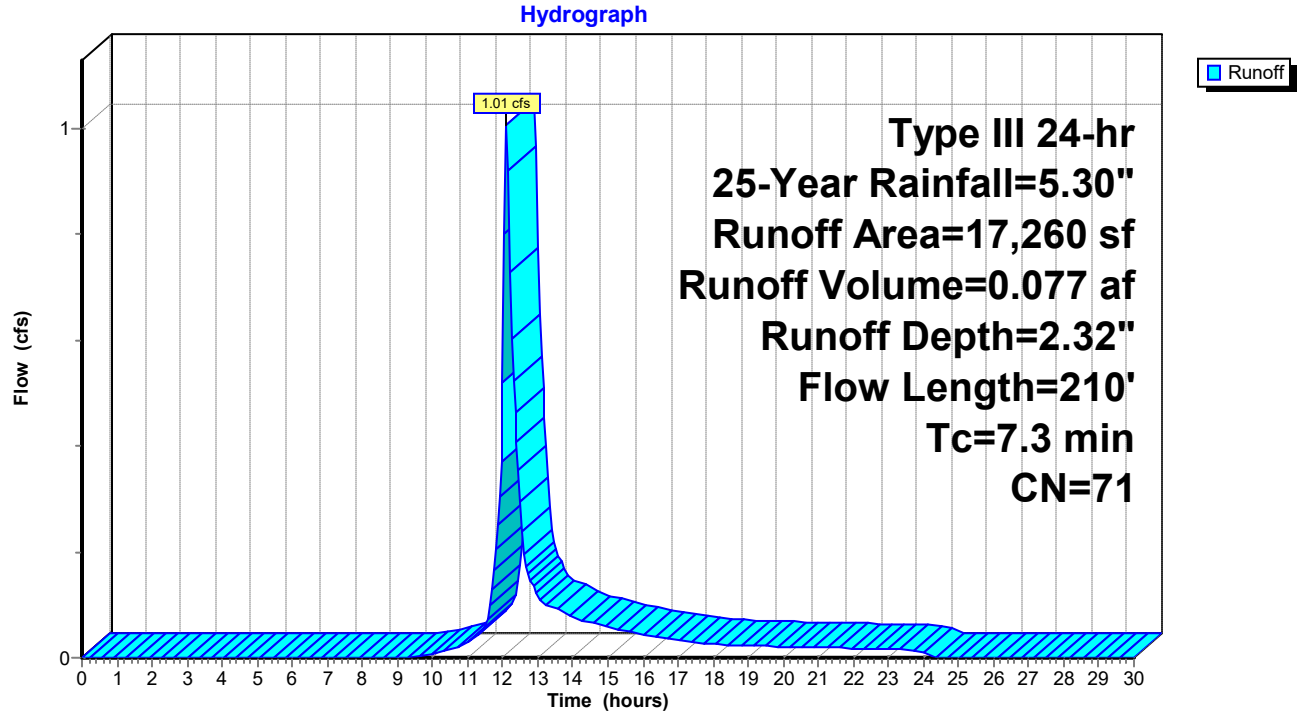
Runoff = 1.01 cfs @ 12.11 hrs, Volume= 0.077 af, Depth= 2.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.30"

Area (sf)	CN	Description
12,716	61	>75% Grass cover, Good, HSG B
4,544	98	Paved parking, HSG B
17,260	71	Weighted Average
12,716		73.67% Pervious Area
4,544		26.33% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	48	0.0200	0.14		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
1.2	27	0.3300	0.39		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.0	18	0.3300	9.25		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.5	117	0.0380	3.96		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
7.3	210	Total			

Subcatchment PS1: TO DCB#1



Summary for Subcatchment PS2: TO DCB#2

[49] Hint: Tc<2dt may require smaller dt

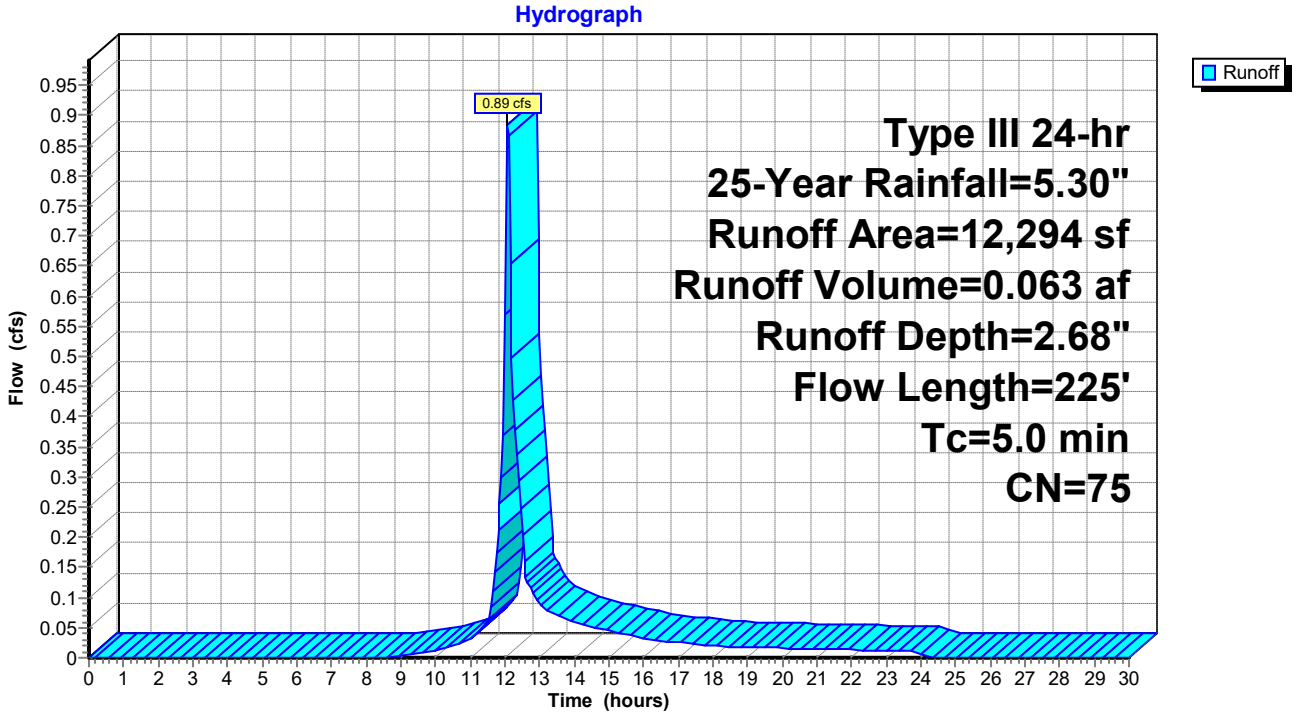
Runoff = 0.89 cfs @ 12.08 hrs, Volume= 0.063 af, Depth= 2.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=5.30"

Area (sf)	CN	Description
7,714	61	>75% Grass cover, Good, HSG B
4,580	98	Paved parking, HSG B
12,294	75	Weighted Average
7,714		62.75% Pervious Area
4,580		37.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.2	60	0.3300	0.46		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.5	85	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.3	80	0.0380	3.96		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
3.0	225	Total, Increased to minimum Tc = 5.0 min			

Subcatchment PS2: TO DCB#2



Summary for Reach 1R: (new Reach)

[62] Hint: Exceeded Reach OL1 OUTLET depth by 0.01' @ 29.95 hrs

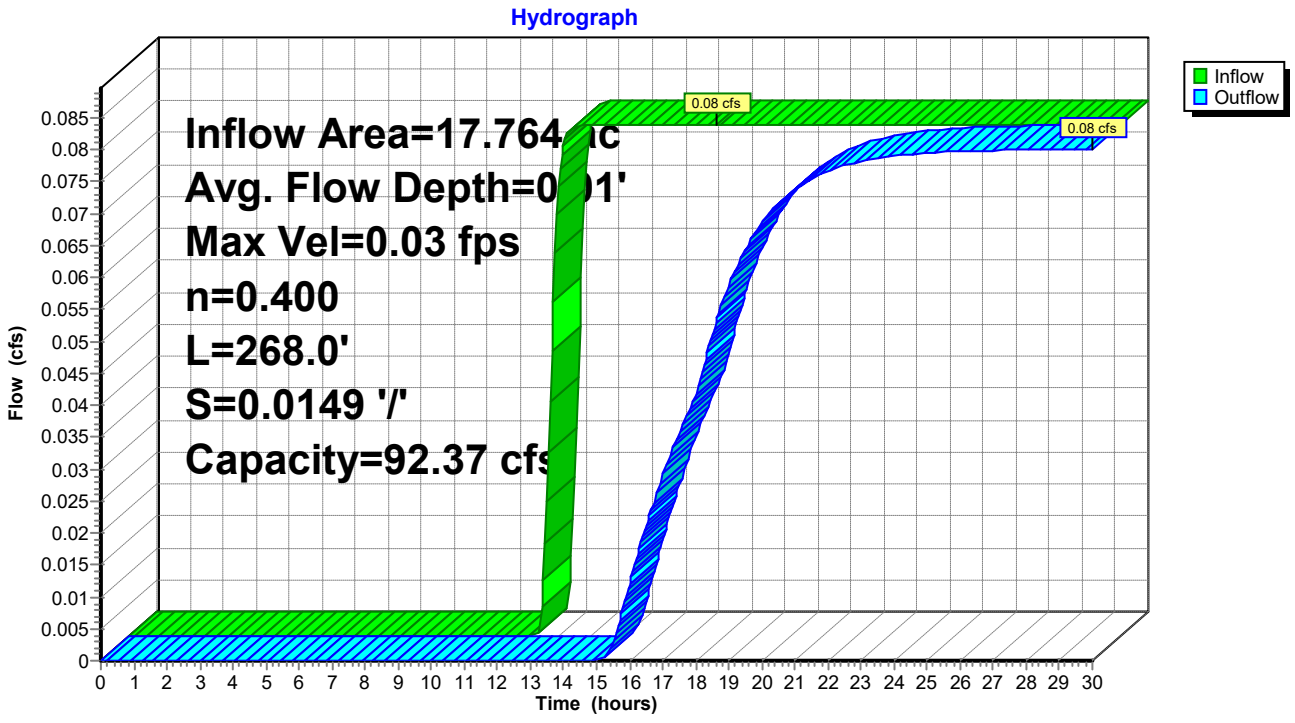
Inflow Area = 17.764 ac, 1.27% Impervious, Inflow Depth > 0.08" for 25-Year event
Inflow = 0.08 cfs @ 17.80 hrs, Volume= 0.114 af
Outflow = 0.08 cfs @ 30.00 hrs, Volume= 0.079 af, Atten= 0%, Lag= 732.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.03 fps, Min. Travel Time= 157.9 min
Avg. Velocity = 0.03 fps, Avg. Travel Time= 168.7 min

Peak Storage= 758 cf @ 30.00 hrs
Average Depth at Peak Storage= 0.01'
Bank-Full Depth= 1.00' Flow Area= 210.0 sf, Capacity= 92.37 cfs

200.00' x 1.00' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 220.00'
Length= 268.0' Slope= 0.0149 '/'
Inlet Invert= 872.00', Outlet Invert= 868.00'

‡



Summary for Reach 2R: WOODS

[62] Hint: Exceeded Reach 15R OUTLET depth by 0.01' @ 28.20 hrs
[62] Hint: Exceeded Reach 16R OUTLET depth by 0.02' @ 28.35 hrs

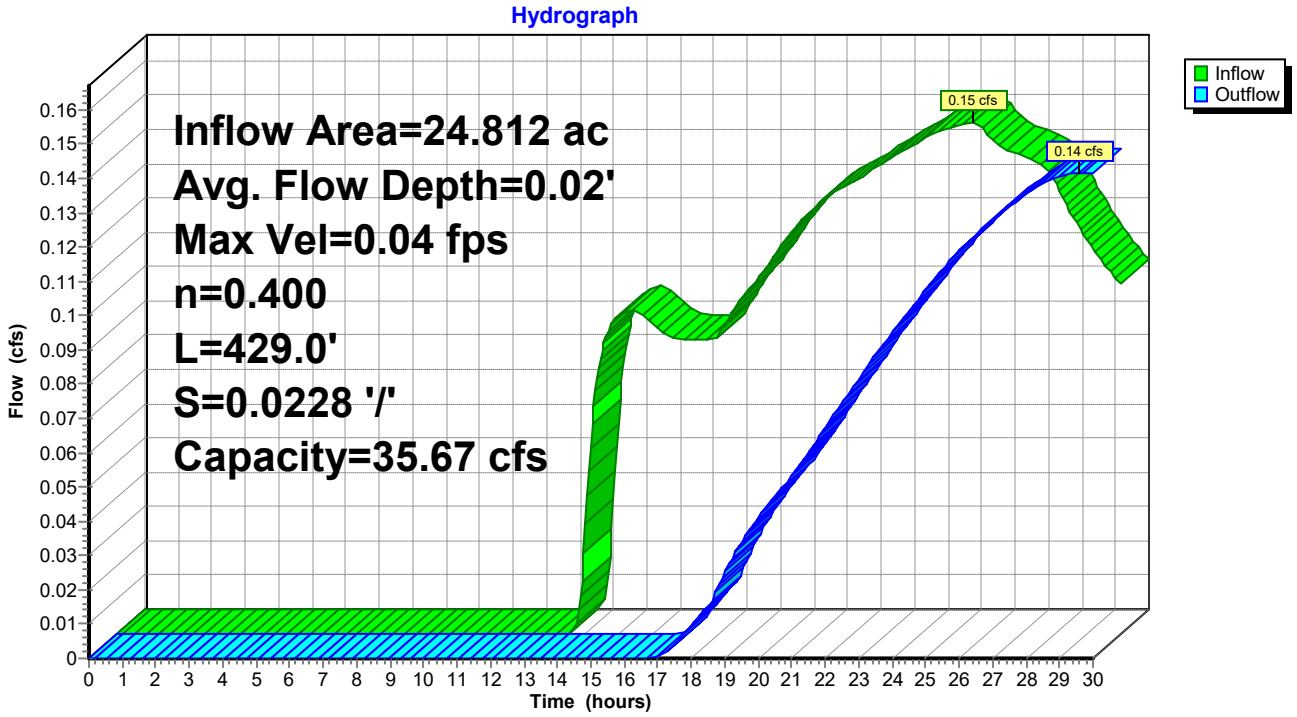
Inflow Area = 24.812 ac, 0.91% Impervious, Inflow Depth > 0.08" for 25-Year event
Inflow = 0.15 cfs @ 25.60 hrs, Volume= 0.156 af
Outflow = 0.14 cfs @ 29.61 hrs, Volume= 0.089 af, Atten= 5%, Lag= 240.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.04 fps, Min. Travel Time= 183.1 min
Avg. Velocity = 0.03 fps, Avg. Travel Time= 226.4 min

Peak Storage= 1,553 cf @ 26.56 hrs
Average Depth at Peak Storage= 0.02'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 35.67 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 429.0' Slope= 0.0228 '/'
Inlet Invert= 849.80', Outlet Invert= 840.00'

Reach 2R: WOODS



Summary for Reach 3R: GRASS

[79] Warning: Submerged Pond DB1 Primary device # 2 OUTLET by 0.01'

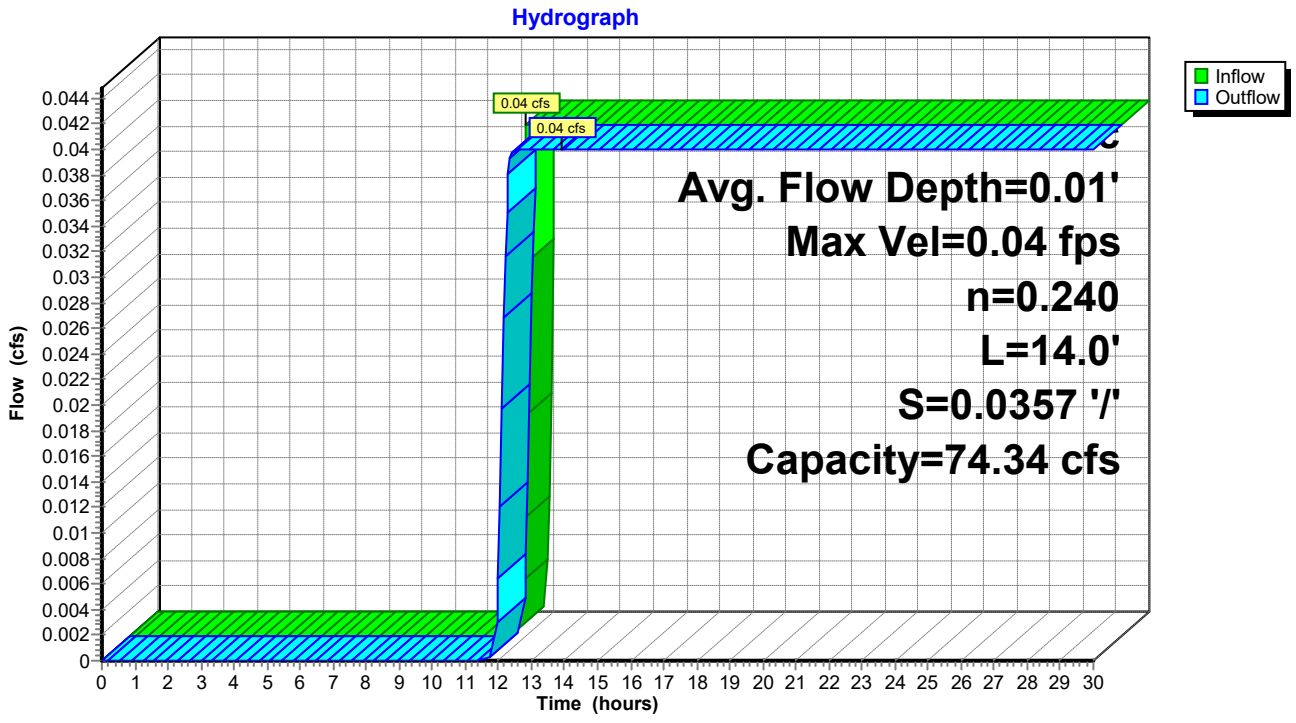
Inflow Area = 2.133 ac, 0.00% Impervious, Inflow Depth > 0.34" for 25-Year event
Inflow = 0.04 cfs @ 12.00 hrs, Volume= 0.060 af
Outflow = 0.04 cfs @ 13.90 hrs, Volume= 0.059 af, Atten= 0%, Lag= 114.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.04 fps, Min. Travel Time= 6.3 min
Avg. Velocity = 0.04 fps, Avg. Travel Time= 6.3 min

Peak Storage= 15 cf @ 13.75 hrs
Average Depth at Peak Storage= 0.01'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 74.34 cfs

200.00' x 0.50' deep channel, n= 0.240 Sheet flow over Dense Grass
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 14.0' Slope= 0.0357 '/'
Inlet Invert= 815.00', Outlet Invert= 814.50'

Reach 3R: GRASS

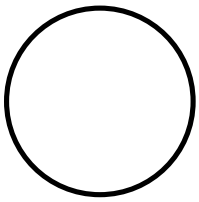


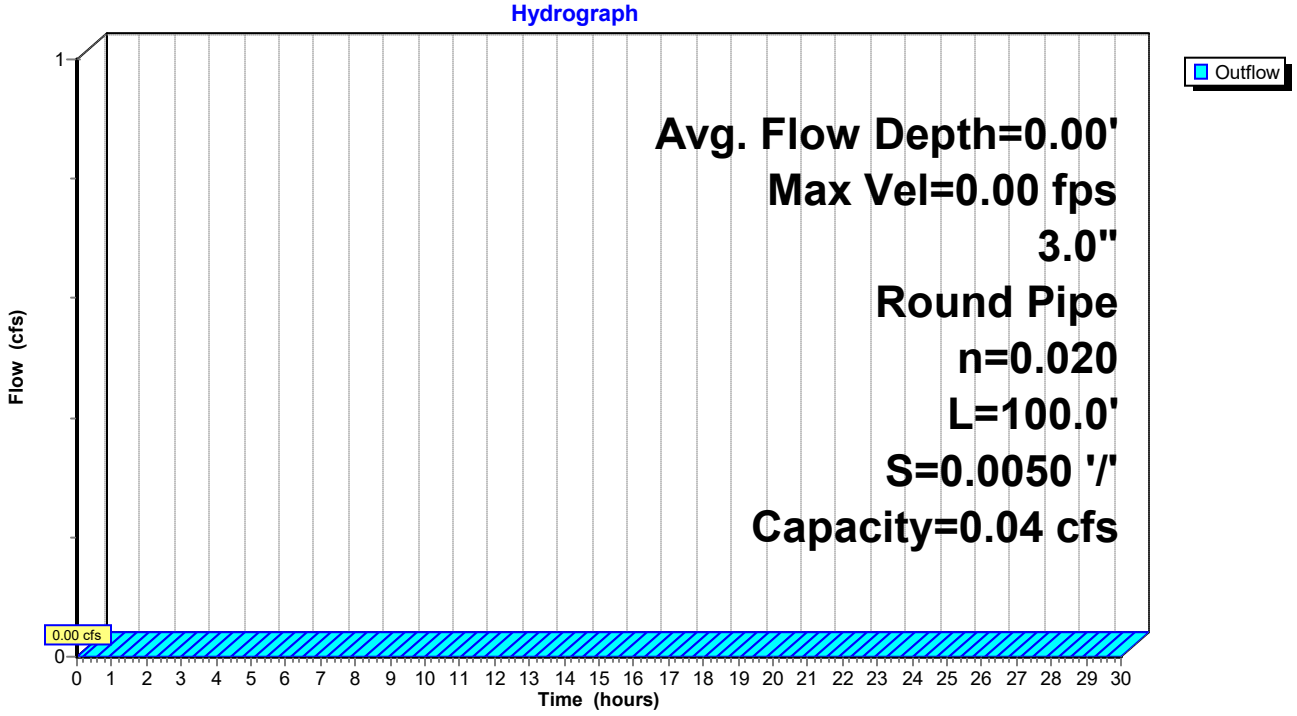
Summary for Reach 4R: (new Reach)

[43] Hint: Has no inflow (Outflow=Zero)

Bank-Full Depth= 0.25' Flow Area= 0.0 sf, Capacity= 0.04 cfs

3.0" Round Pipe
n= 0.020 Corrugated PE, corrugated interior
Length= 100.0' Slope= 0.0050 '/'
Inlet Invert= 0.00', Outlet Invert= -0.50'





Summary for Reach 5R: WOODS

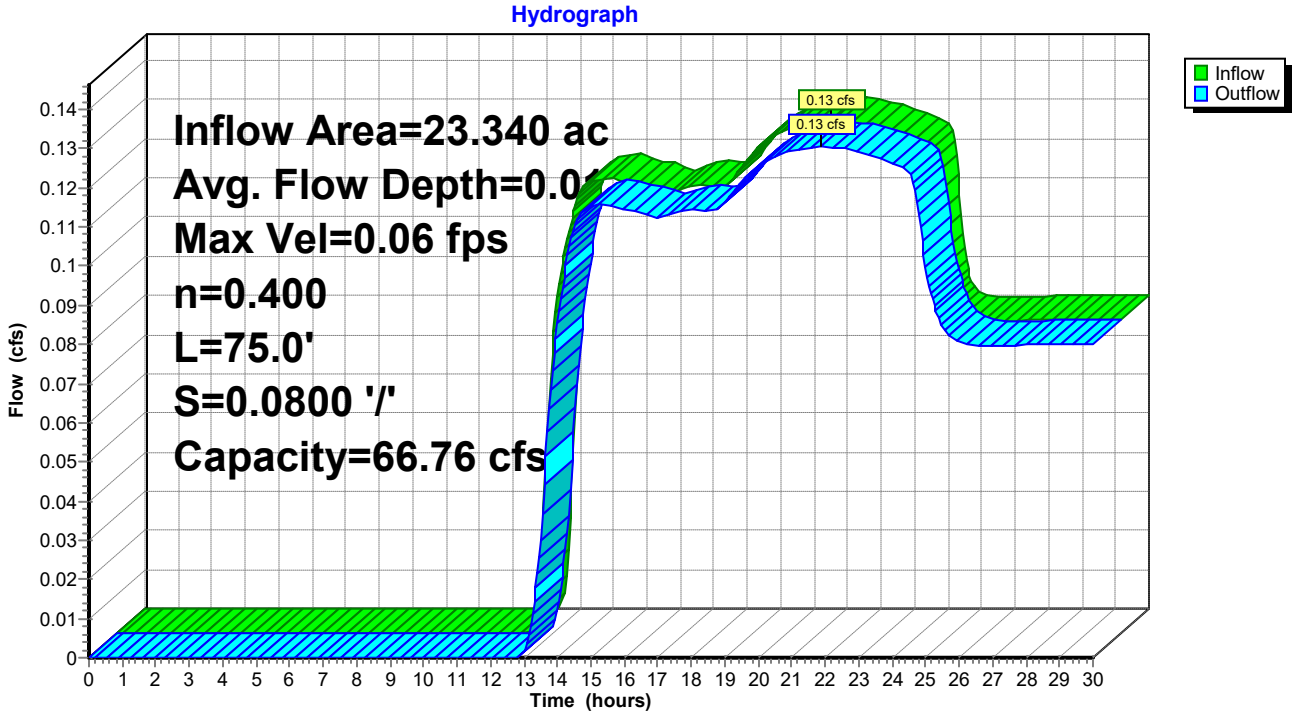
Inflow Area = 23.340 ac, 0.97% Impervious, Inflow Depth > 0.08" for 25-Year event
Inflow = 0.13 cfs @ 21.33 hrs, Volume= 0.151 af
Outflow = 0.13 cfs @ 21.87 hrs, Volume= 0.146 af, Atten= 0%, Lag= 32.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.06 fps, Min. Travel Time= 22.5 min
Avg. Velocity = 0.05 fps, Avg. Travel Time= 25.0 min

Peak Storage= 176 cf @ 21.50 hrs
Average Depth at Peak Storage= 0.01'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 66.76 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 75.0' Slope= 0.0800 '/'
Inlet Invert= 868.00', Outlet Invert= 862.00'

Reach 5R: WOODS



Summary for Reach 6R: WOODS

[61] Hint: Exceeded Reach 3R outlet invert by 0.01' @ 30.00 hrs

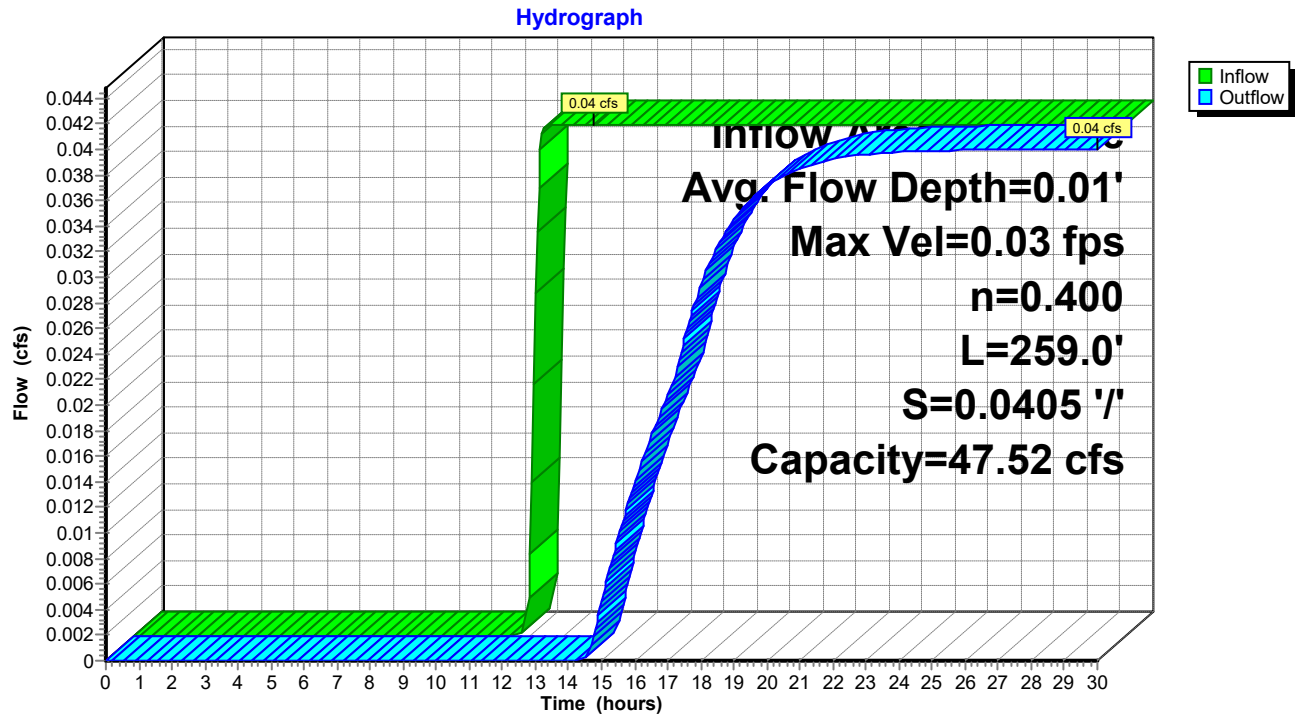
Inflow Area = 2.133 ac, 0.00% Impervious, Inflow Depth > 0.33" for 25-Year event
Inflow = 0.04 cfs @ 13.90 hrs, Volume= 0.059 af
Outflow = 0.04 cfs @ 30.00 hrs, Volume= 0.043 af, Atten= 0%, Lag= 966.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.03 fps, Min. Travel Time= 149.1 min
Avg. Velocity = 0.03 fps, Avg. Travel Time= 157.9 min

Peak Storage= 358 cf @ 30.00 hrs
Average Depth at Peak Storage= 0.01'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 47.52 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 259.0' Slope= 0.0405 '/'
Inlet Invert= 814.50', Outlet Invert= 804.00'

‡



Summary for Reach 7R: GRASS

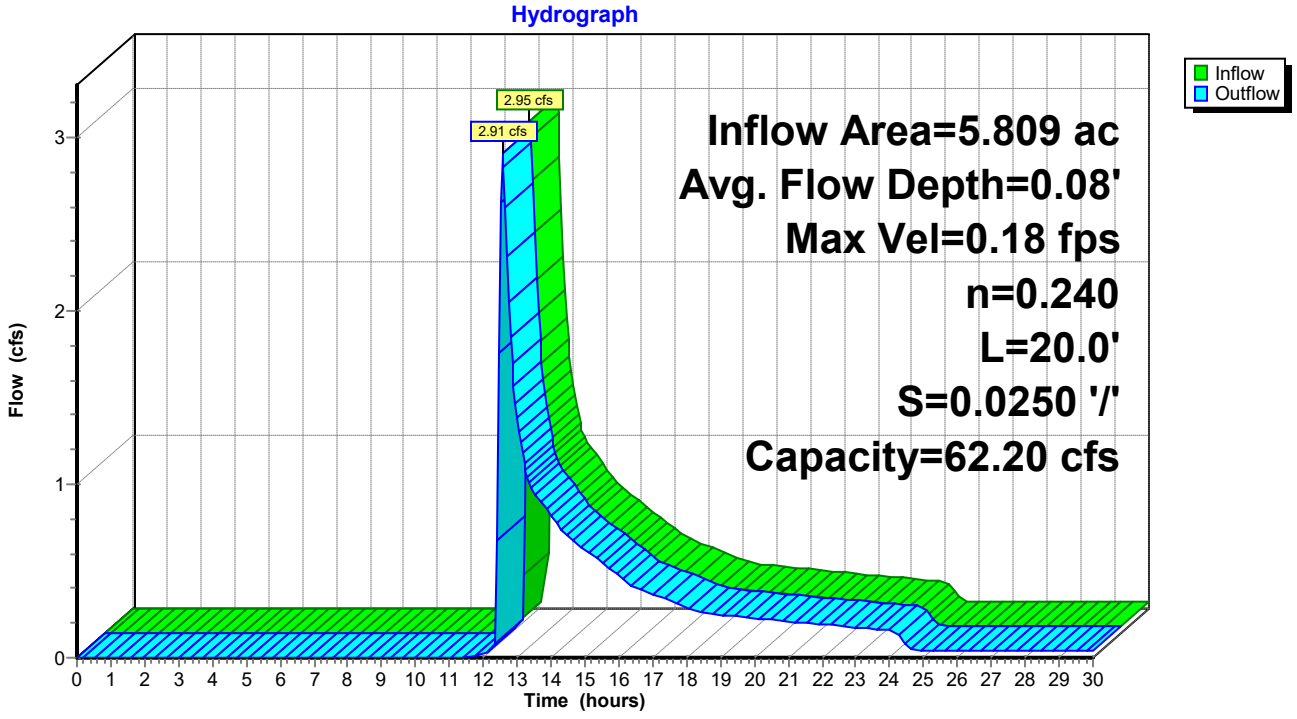
Inflow Area = 5.809 ac, 0.00% Impervious, Inflow Depth > 1.00" for 25-Year event
Inflow = 2.95 cfs @ 12.51 hrs, Volume= 0.483 af
Outflow = 2.91 cfs @ 12.56 hrs, Volume= 0.482 af, Atten= 1%, Lag= 3.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.18 fps, Min. Travel Time= 1.8 min
Avg. Velocity = 0.06 fps, Avg. Travel Time= 5.2 min

Peak Storage= 322 cf @ 12.53 hrs
Average Depth at Peak Storage= 0.08'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 62.20 cfs

200.00' x 0.50' deep channel, n= 0.240 Sheet flow over Dense Grass
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 20.0' Slope= 0.0250 '/'
Inlet Invert= 805.50', Outlet Invert= 805.00'

Reach 7R: GRASS



Summary for Reach 8R: WOODS

[62] Hint: Exceeded Reach 7R OUTLET depth by 0.04' @ 13.50 hrs

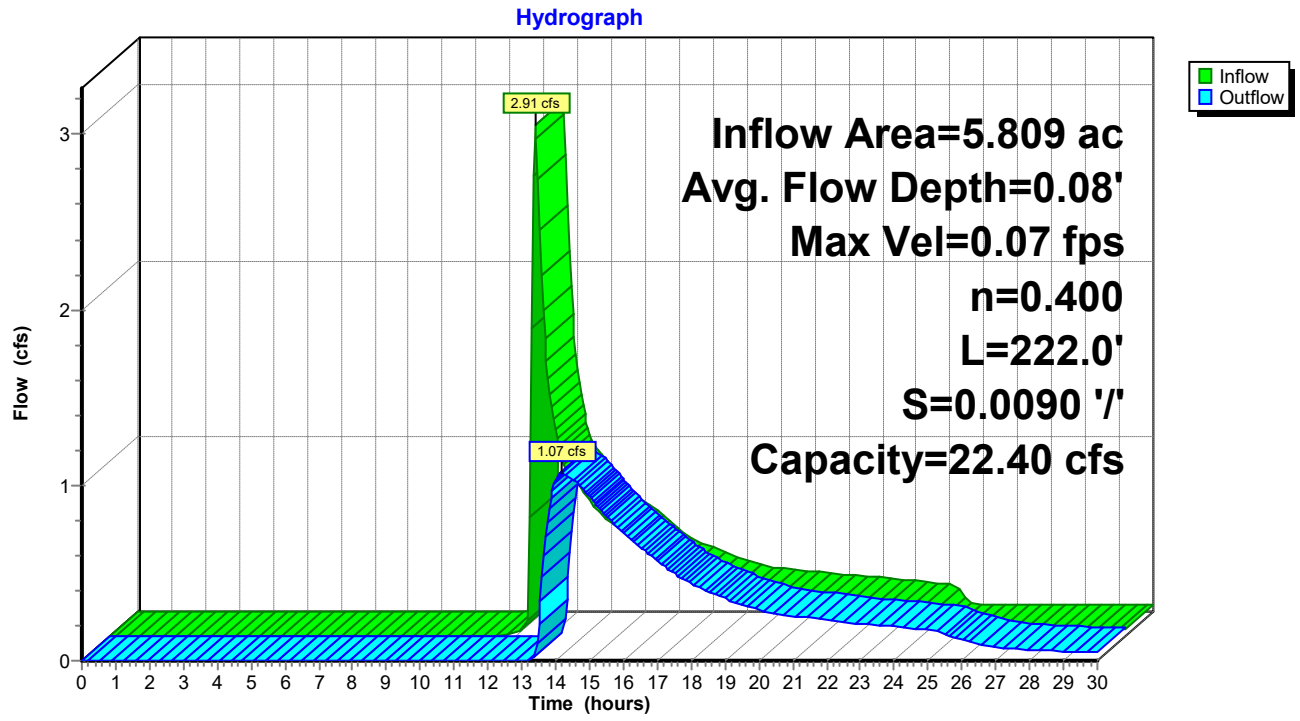
Inflow Area = 5.809 ac, 0.00% Impervious, Inflow Depth > 1.00" for 25-Year event
Inflow = 2.91 cfs @ 12.56 hrs, Volume= 0.482 af
Outflow = 1.07 cfs @ 14.20 hrs, Volume= 0.467 af, Atten= 63%, Lag= 98.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.07 fps, Min. Travel Time= 56.2 min
Avg. Velocity = 0.04 fps, Avg. Travel Time= 102.8 min

Peak Storage= 3,613 cf @ 13.26 hrs
Average Depth at Peak Storage= 0.08'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 22.40 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 222.0' Slope= 0.0090 '/'
Inlet Invert= 805.00', Outlet Invert= 803.00'

Reach 8R: WOODS



Summary for Reach 9R: WOODS-2

[62] Hint: Exceeded Reach 10R OUTLET depth by 0.01' @ 19.45 hrs

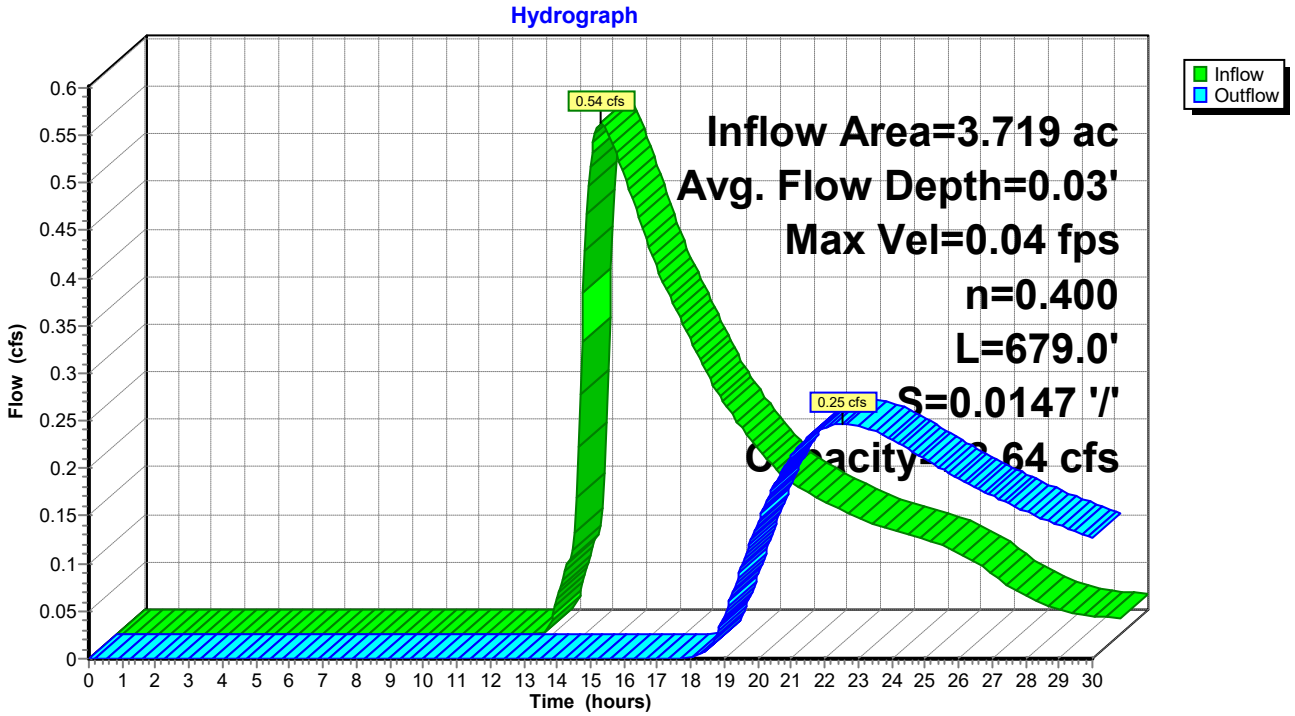
Inflow Area = 3.719 ac, 16.80% Impervious, Inflow Depth > 0.79" for 25-Year event
Inflow = 0.54 cfs @ 14.49 hrs, Volume= 0.243 af
Outflow = 0.25 cfs @ 22.53 hrs, Volume= 0.170 af, Atten= 54%, Lag= 482.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.04 fps, Min. Travel Time= 265.9 min
Avg. Velocity = 0.03 fps, Avg. Travel Time= 343.1 min

Peak Storage= 3,934 cf @ 18.10 hrs
Average Depth at Peak Storage= 0.03'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 28.64 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 679.0' Slope= 0.0147 '/'
Inlet Invert= 858.00', Outlet Invert= 848.00'

Reach 9R: WOODS-2



Summary for Reach 10R: WOODS-1

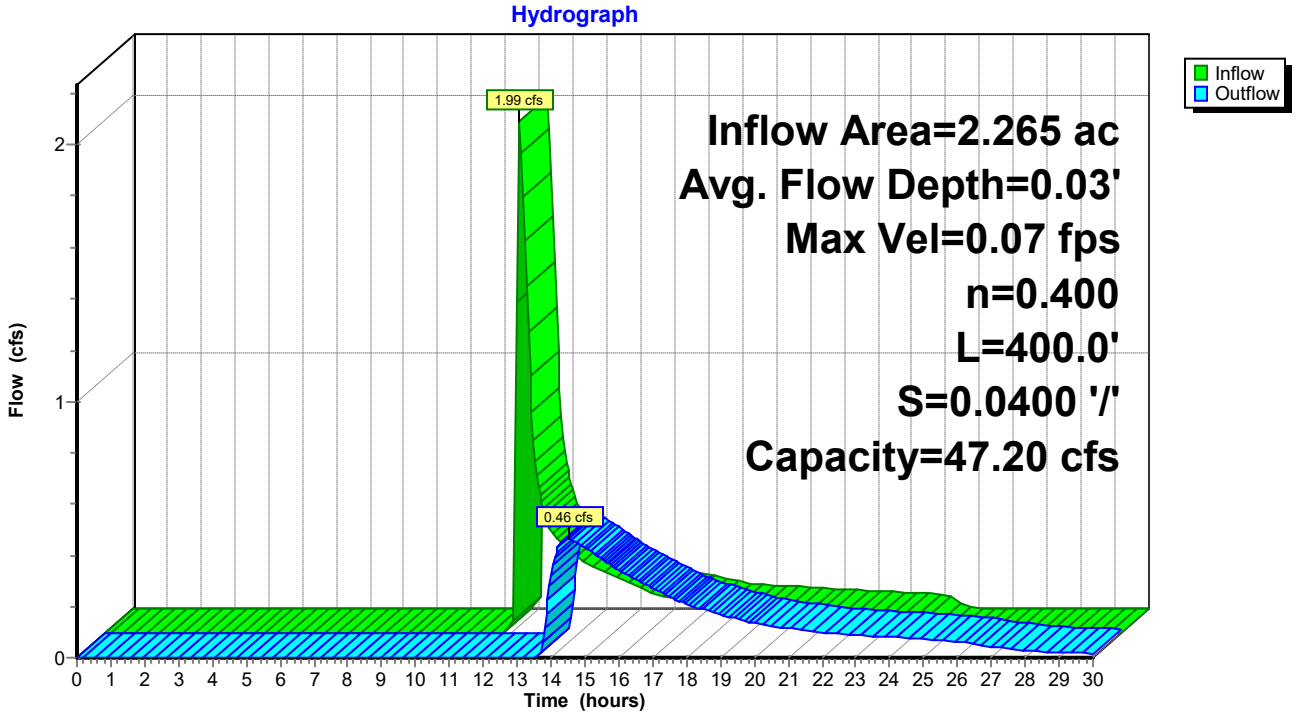
Inflow Area = 2.265 ac, 25.48% Impervious, Inflow Depth = 1.10" for 25-Year event
Inflow = 1.99 cfs @ 12.25 hrs, Volume= 0.208 af
Outflow = 0.46 cfs @ 14.51 hrs, Volume= 0.201 af, Atten= 77%, Lag= 135.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.07 fps, Min. Travel Time= 90.4 min
Avg. Velocity = 0.04 fps, Avg. Travel Time= 160.5 min

Peak Storage= 2,501 cf @ 13.00 hrs
Average Depth at Peak Storage= 0.03'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 47.20 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 400.0' Slope= 0.0400 '/'
Inlet Invert= 874.00', Outlet Invert= 858.00'

Reach 10R: WOODS-1



Summary for Reach 11R: WOODS-3

[62] Hint: Exceeded Reach 9R OUTLET depth by 0.02' @ 29.95 hrs
[62] Hint: Exceeded Reach 17R OUTLET depth by 0.03' @ 29.60 hrs

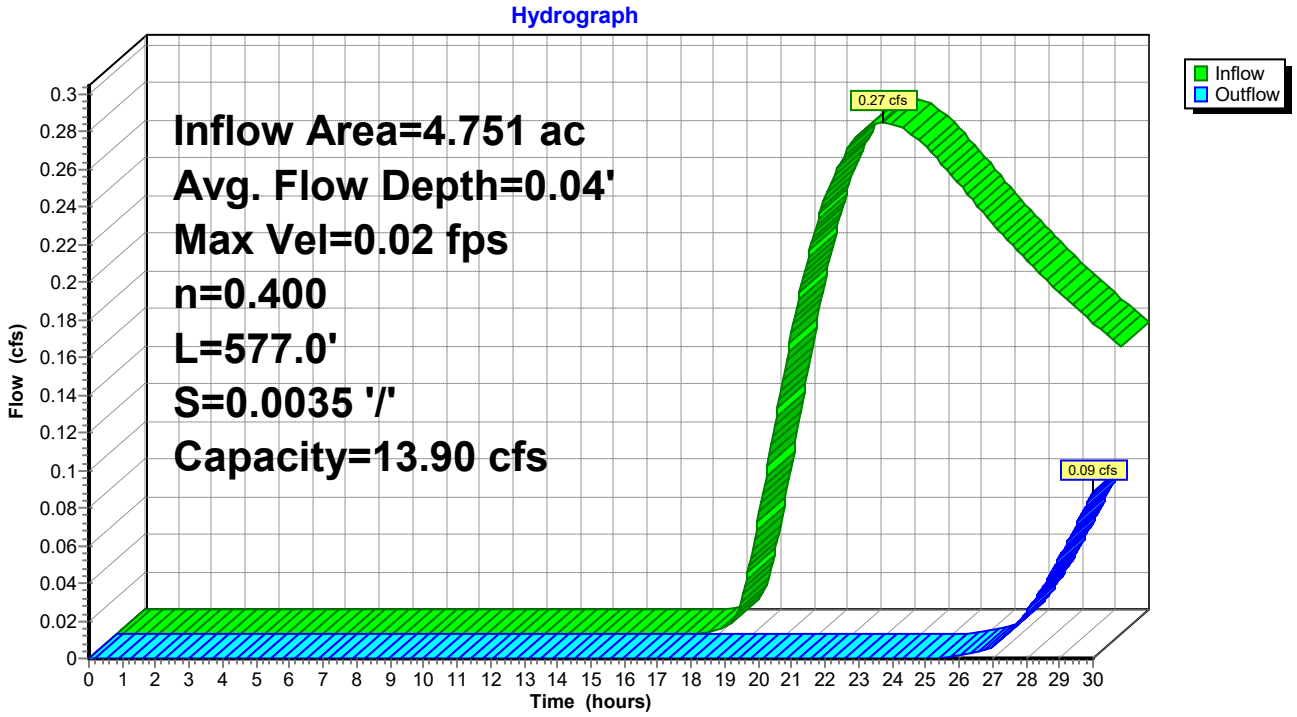
Inflow Area = 4.751 ac, 13.84% Impervious, Inflow Depth > 0.48" for 25-Year event
Inflow = 0.27 cfs @ 22.90 hrs, Volume= 0.191 af
Outflow = 0.09 cfs @ 30.00 hrs, Volume= 0.011 af, Atten= 68%, Lag= 425.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.02 fps, Min. Travel Time= 400.4 min
Avg. Velocity = 0.02 fps, Avg. Travel Time= 575.6 min

Peak Storage= 4,201 cf @ 28.56 hrs
Average Depth at Peak Storage= 0.04'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 13.90 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 577.0' Slope= 0.0035 '/'
Inlet Invert= 848.00', Outlet Invert= 846.00'

Reach 11R: WOODS-3



Summary for Reach 12R: GRASS

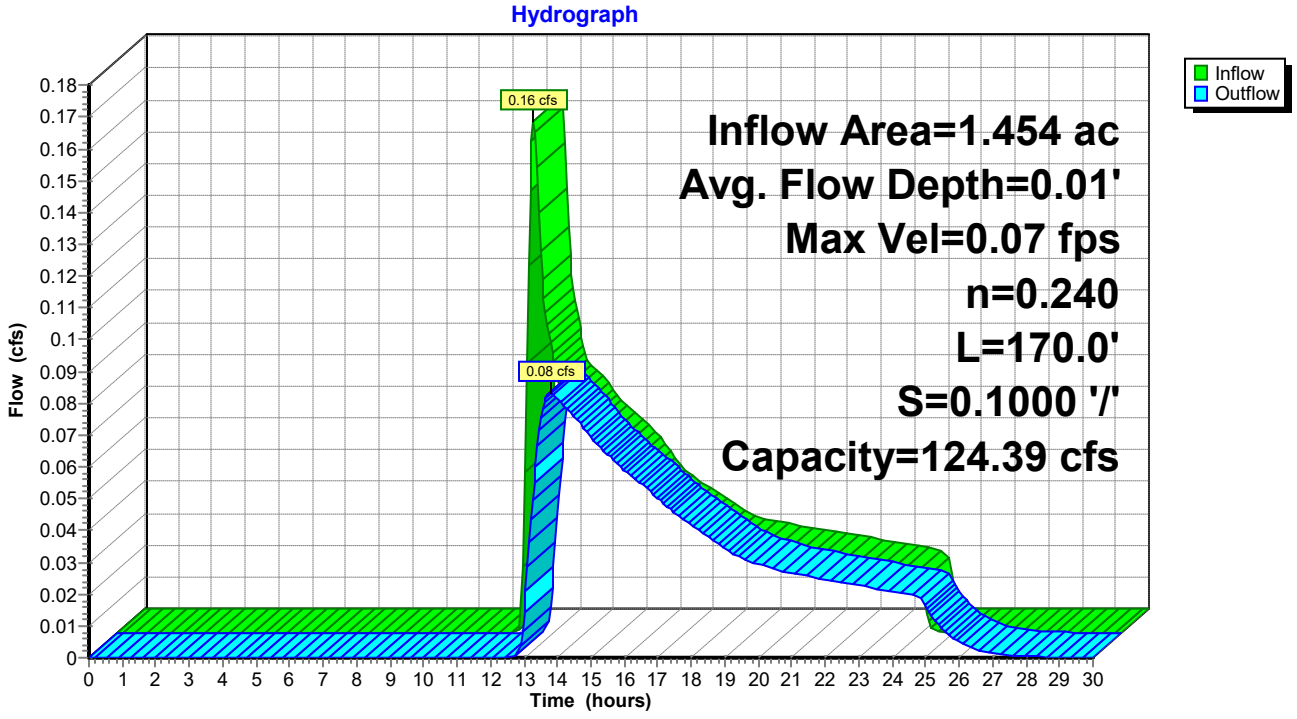
Inflow Area = 1.454 ac, 3.28% Impervious, Inflow Depth = 0.35" for 25-Year event
Inflow = 0.16 cfs @ 12.46 hrs, Volume= 0.042 af
Outflow = 0.08 cfs @ 13.78 hrs, Volume= 0.042 af, Atten= 48%, Lag= 79.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.07 fps, Min. Travel Time= 41.2 min
Avg. Velocity = 0.06 fps, Avg. Travel Time= 48.6 min

Peak Storage= 205 cf @ 13.09 hrs
Average Depth at Peak Storage= 0.01'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 124.39 cfs

200.00' x 0.50' deep channel, n= 0.240 Sheet flow over Dense Grass
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 170.0' Slope= 0.1000 '/'
Inlet Invert= 883.00', Outlet Invert= 866.00'

Reach 12R: GRASS



Summary for Reach 13R: WOODS-4

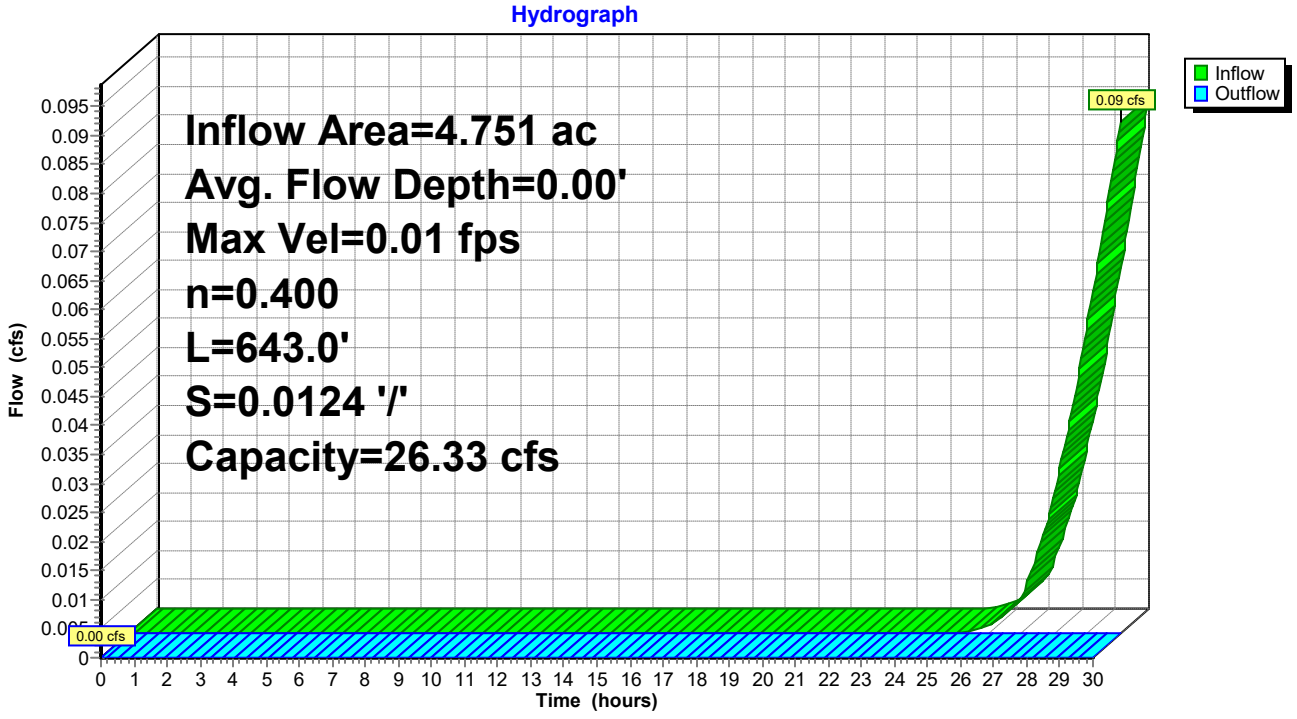
Inflow Area = 4.751 ac, 13.84% Impervious, Inflow Depth > 0.03" for 25-Year event
Inflow = 0.09 cfs @ 30.00 hrs, Volume= 0.011 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.01 fps, Min. Travel Time= 884.6 min
Avg. Velocity = 0.01 fps, Avg. Travel Time= 884.6 min

Peak Storage= 429 cf @ 30.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 26.33 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 643.0' Slope= 0.0124 '/'
Inlet Invert= 846.00', Outlet Invert= 838.00'

Reach 13R: WOODS-4



Summary for Reach 14R: WOODS

[79] Warning: Submerged Pond DB5 Primary device # 2 OUTLET by 0.01'

Inflow Area = 1.032 ac, 3.16% Impervious, Inflow Depth = 0.47" for 25-Year event
Inflow = 0.22 cfs @ 12.31 hrs, Volume= 0.041 af
Outflow = 0.09 cfs @ 13.90 hrs, Volume= 0.041 af, Atten= 61%, Lag= 95.0 min

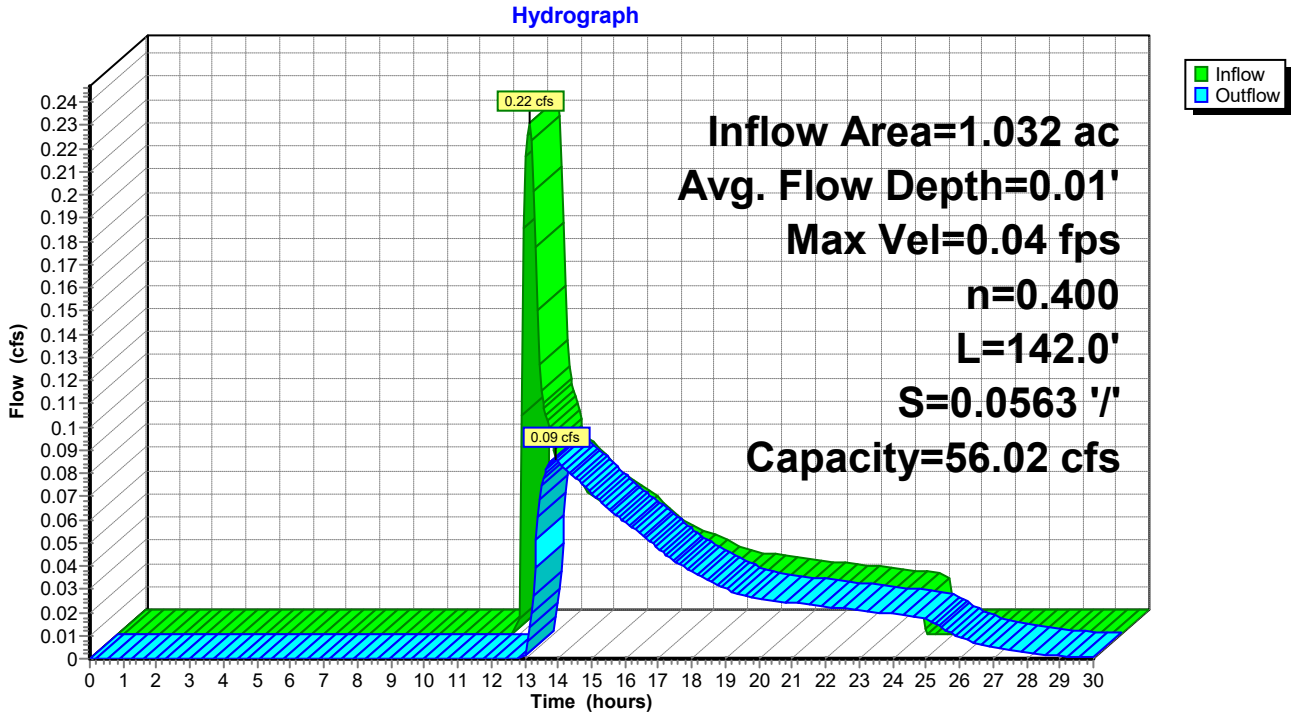
Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.04 fps, Min. Travel Time= 56.6 min
Avg. Velocity = 0.03 fps, Avg. Travel Time= 81.5 min

Peak Storage= 291 cf @ 12.95 hrs
Average Depth at Peak Storage= 0.01'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 56.02 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 142.0' Slope= 0.0563 '/'
Inlet Invert= 864.00', Outlet Invert= 856.00'

‡

Reach 14R: WOODS



Summary for Reach 15R: WOODS

[62] Hint: Exceeded Reach 5R OUTLET depth by 0.01' @ 25.10 hrs

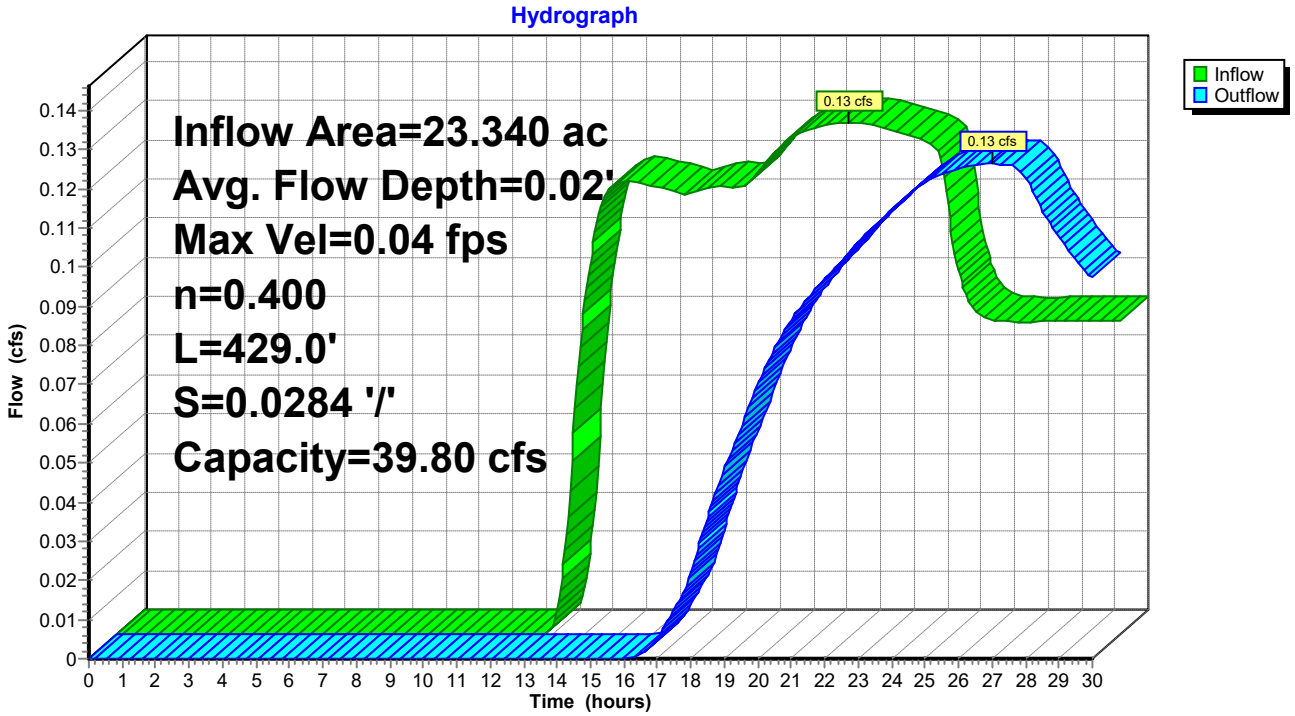
Inflow Area = 23.340 ac, 0.97% Impervious, Inflow Depth > 0.08" for 25-Year event
Inflow = 0.13 cfs @ 21.87 hrs, Volume= 0.146 af
Outflow = 0.13 cfs @ 26.99 hrs, Volume= 0.100 af, Atten= 3%, Lag= 306.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.04 fps, Min. Travel Time= 179.5 min
Avg. Velocity = 0.03 fps, Avg. Travel Time= 213.3 min

Peak Storage= 1,362 cf @ 23.99 hrs
Average Depth at Peak Storage= 0.02'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 39.80 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 429.0' Slope= 0.0284 '/'
Inlet Invert= 862.00', Outlet Invert= 849.80'

Reach 15R: WOODS



Summary for Reach 16R: WOODS

[79] Warning: Submerged Pond DB3 Primary device # 2 OUTLET by 0.01'

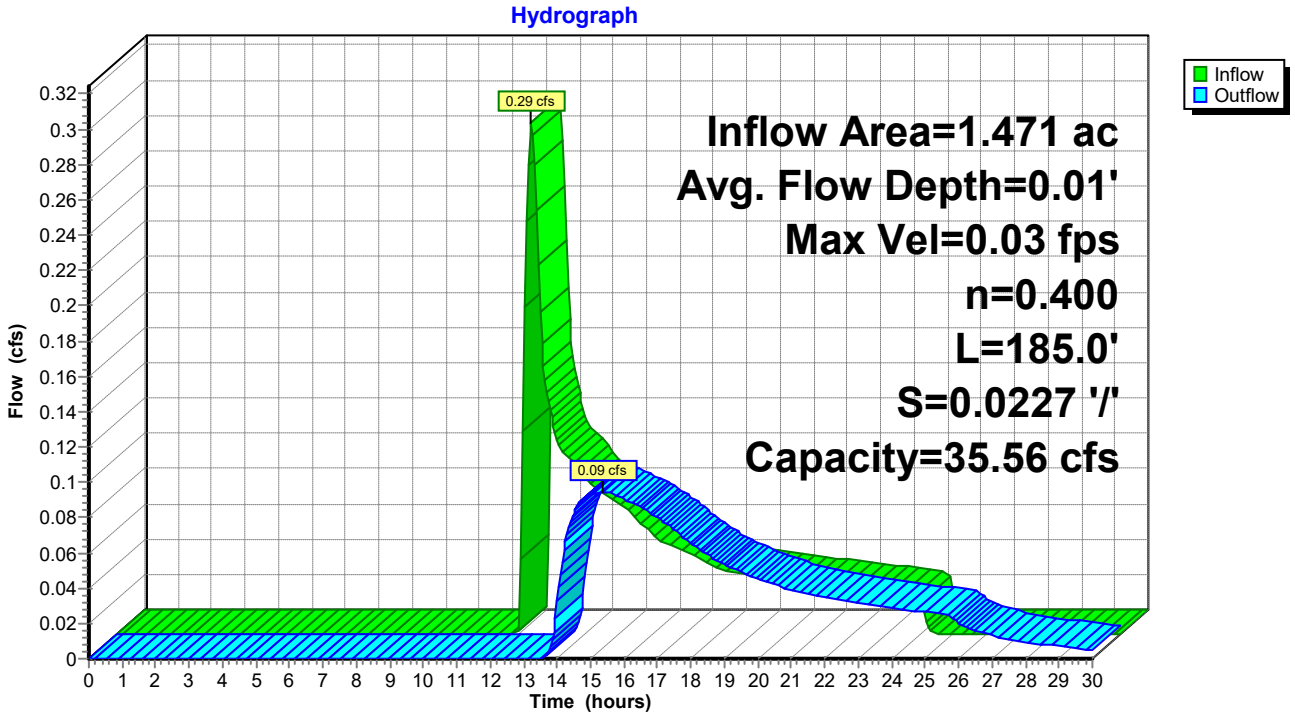
Inflow Area = 1.471 ac, 0.00% Impervious, Inflow Depth = 0.47" for 25-Year event
Inflow = 0.29 cfs @ 12.40 hrs, Volume= 0.057 af
Outflow = 0.09 cfs @ 15.36 hrs, Volume= 0.056 af, Atten= 67%, Lag= 177.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.03 fps, Min. Travel Time= 93.0 min
Avg. Velocity = 0.02 fps, Avg. Travel Time= 135.1 min

Peak Storage= 527 cf @ 13.81 hrs
Average Depth at Peak Storage= 0.01'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 35.56 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 185.0' Slope= 0.0227 '/'
Inlet Invert= 854.00', Outlet Invert= 849.80'

Reach 16R: WOODS



Summary for Reach 17R: WOODS-2

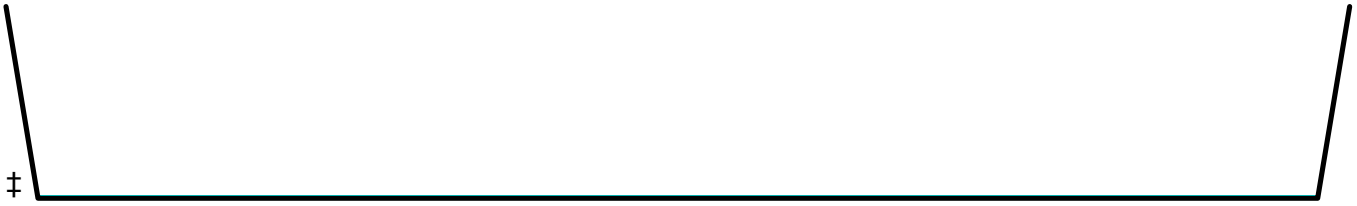
[62] Hint: Exceeded Reach 14R OUTLET depth by 0.01' @ 26.35 hrs

Inflow Area = 1.032 ac, 3.16% Impervious, Inflow Depth > 0.47" for 25-Year event
Inflow = 0.09 cfs @ 13.90 hrs, Volume= 0.041 af
Outflow = 0.03 cfs @ 25.18 hrs, Volume= 0.021 af, Atten= 62%, Lag= 677.2 min

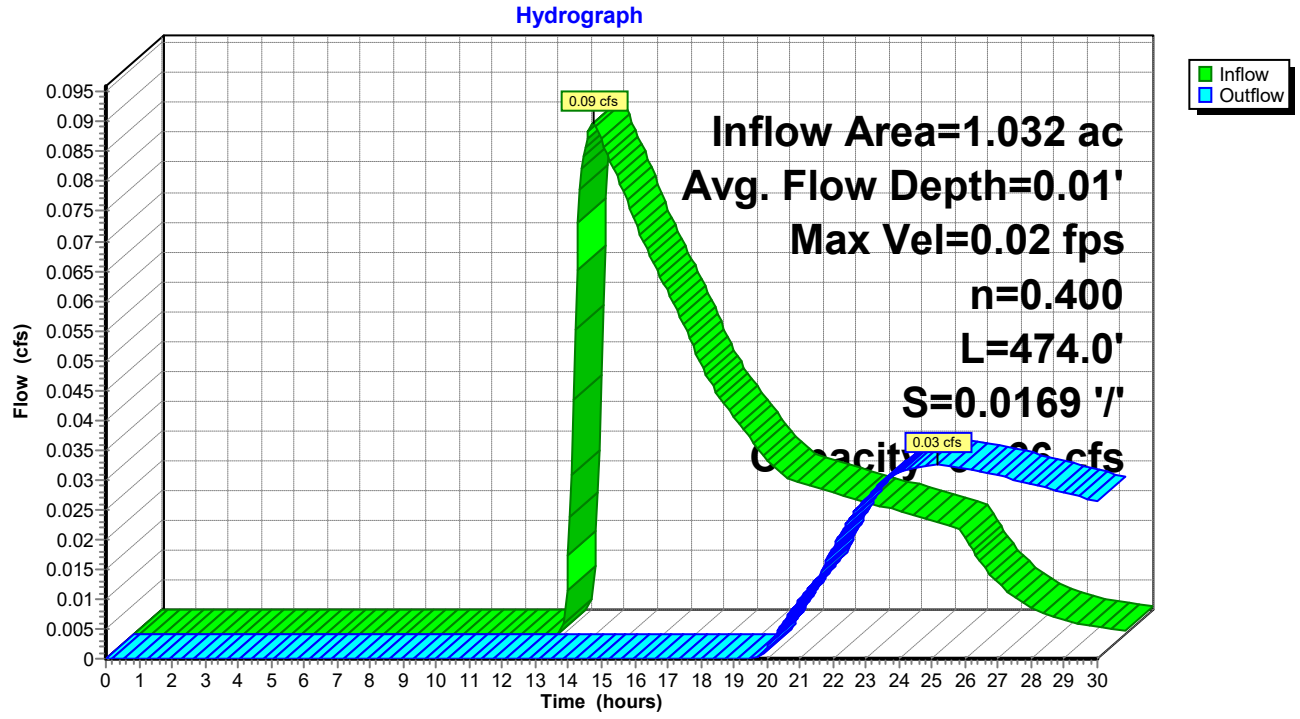
Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.02 fps, Min. Travel Time= 389.0 min
Avg. Velocity = 0.02 fps, Avg. Travel Time= 450.4 min

Peak Storage= 757 cf @ 18.70 hrs
Average Depth at Peak Storage= 0.01'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 30.66 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 474.0' Slope= 0.0169 '/'
Inlet Invert= 856.00', Outlet Invert= 848.00'



Reach 17R: WOODS-2



Summary for Reach 18R: WOODS-4

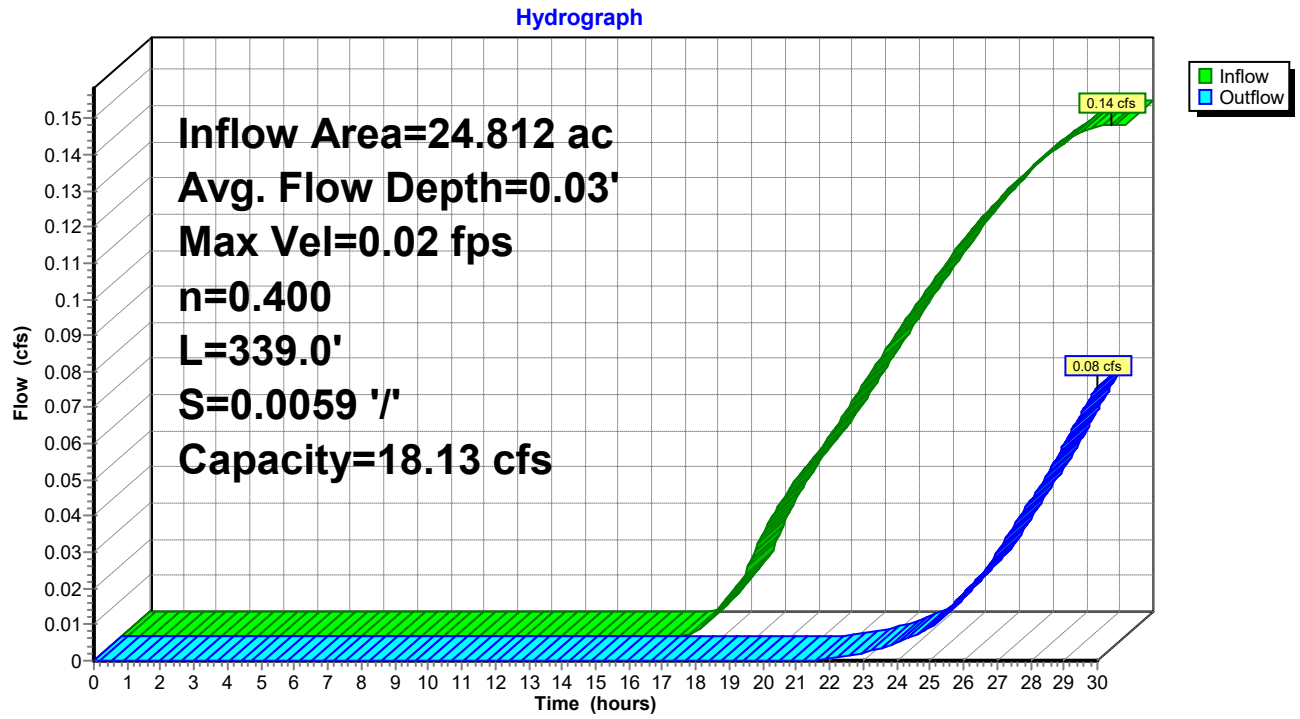
[62] Hint: Exceeded Reach 2R OUTLET depth by 0.01' @ 29.95 hrs

Inflow Area = 24.812 ac, 0.91% Impervious, Inflow Depth > 0.04" for 25-Year event
Inflow = 0.14 cfs @ 29.61 hrs, Volume= 0.089 af
Outflow = 0.08 cfs @ 30.00 hrs, Volume= 0.017 af, Atten= 46%, Lag= 23.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.02 fps, Min. Travel Time= 230.4 min
Avg. Velocity = 0.02 fps, Avg. Travel Time= 372.6 min

Peak Storage= 1,710 cf @ 30.00 hrs
Average Depth at Peak Storage= 0.03'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 18.13 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 339.0' Slope= 0.0059 '/'
Inlet Invert= 840.00', Outlet Invert= 838.00'



Summary for Reach CB-A: TO DMH-X

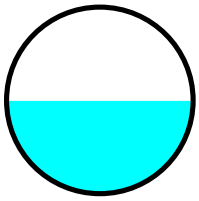
[52] Hint: Inlet/Outlet conditions not evaluated

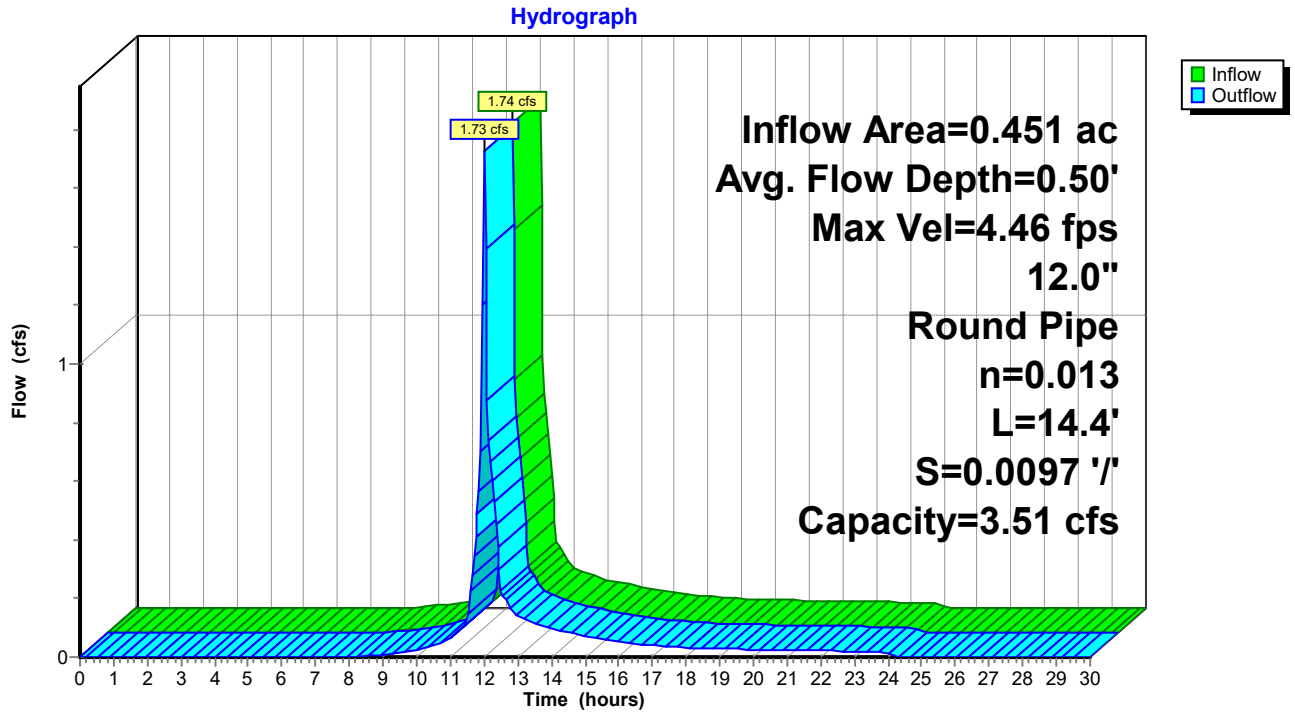
Inflow Area = 0.451 ac, 43.07% Impervious, Inflow Depth = 2.87" for 25-Year event
Inflow = 1.74 cfs @ 12.00 hrs, Volume= 0.108 af
Outflow = 1.73 cfs @ 12.01 hrs, Volume= 0.108 af, Atten= 1%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.46 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.56 fps, Avg. Travel Time= 0.2 min

Peak Storage= 6 cf @ 12.01 hrs
Average Depth at Peak Storage= 0.50'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.51 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 14.4' Slope= 0.0097 '/'
Inlet Invert= 901.29', Outlet Invert= 901.15'





Summary for Reach CB-B: TO DMH-A

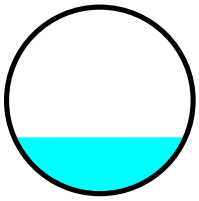
[52] Hint: Inlet/Outlet conditions not evaluated

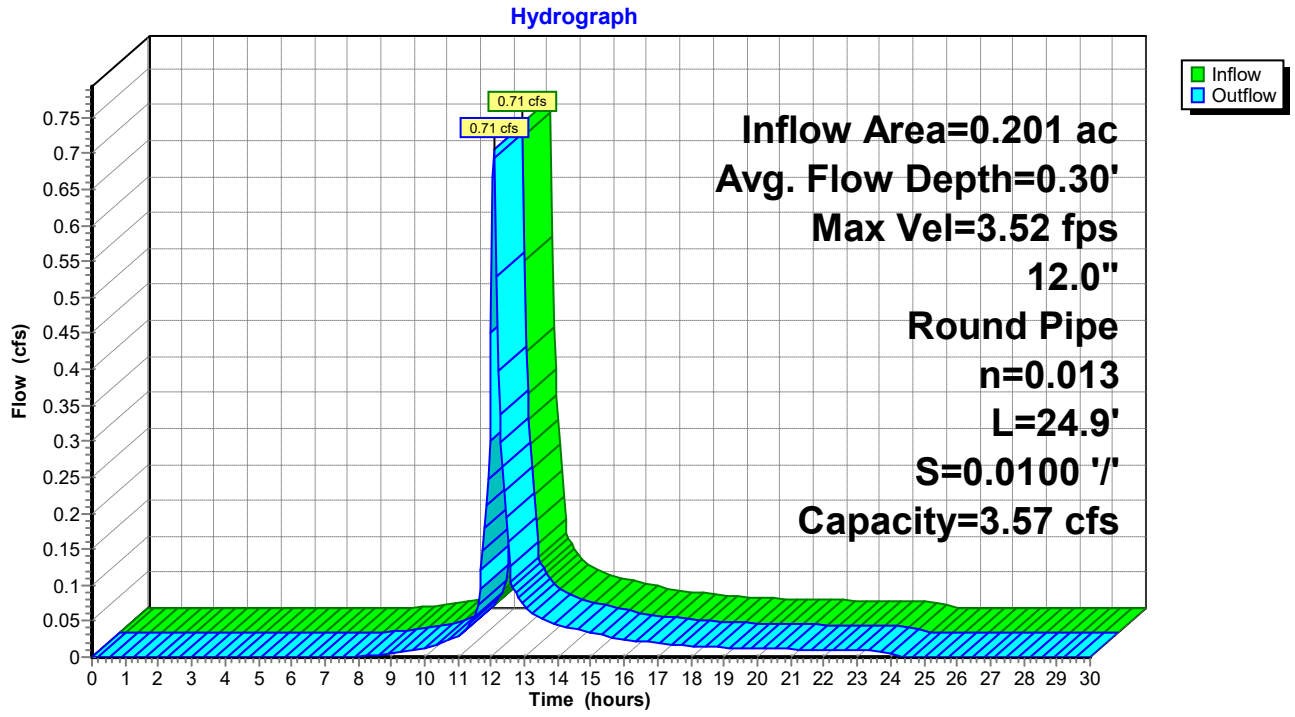
Inflow Area = 0.201 ac, 47.12% Impervious, Inflow Depth = 3.01" for 25-Year event
Inflow = 0.71 cfs @ 12.08 hrs, Volume= 0.050 af
Outflow = 0.71 cfs @ 12.08 hrs, Volume= 0.050 af, Atten= 0%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.52 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.24 fps, Avg. Travel Time= 0.3 min

Peak Storage= 5 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.30'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.57 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 24.9' Slope= 0.0100 '/'
Inlet Invert= 902.74', Outlet Invert= 902.49'





Summary for Reach CB-D: TO DMH-B

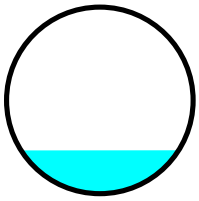
[52] Hint: Inlet/Outlet conditions not evaluated

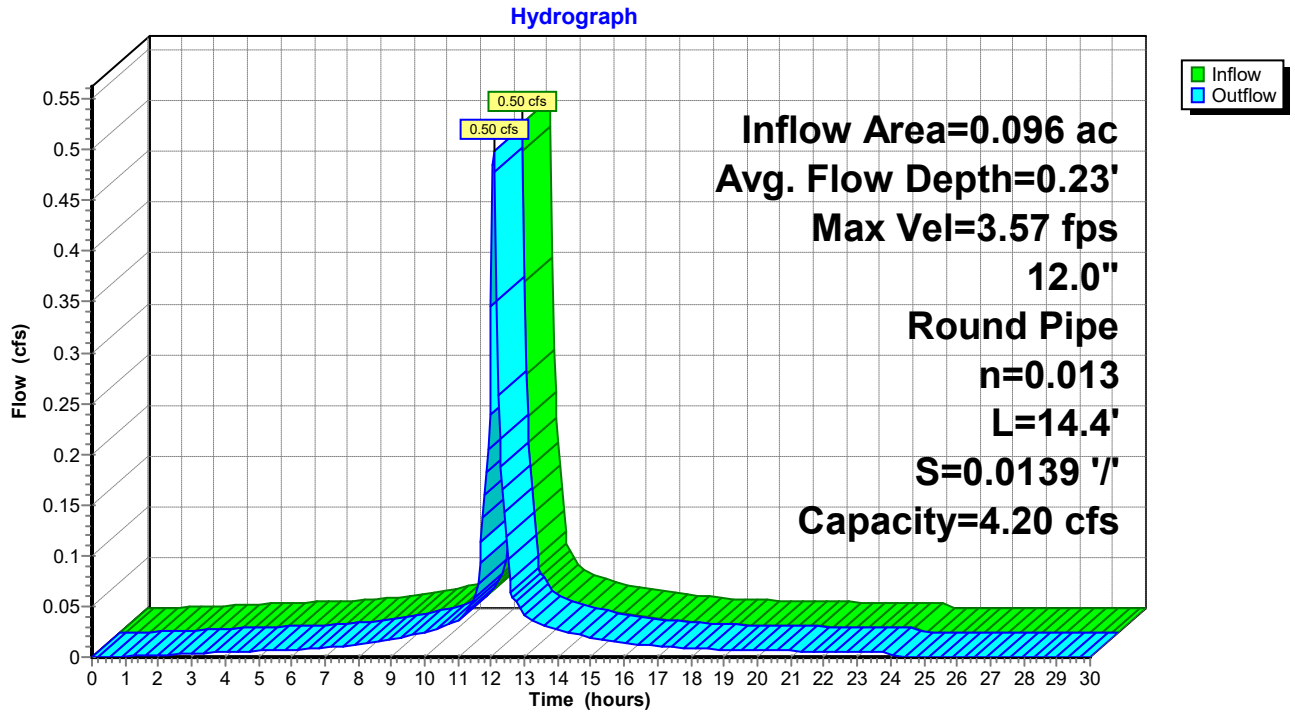
Inflow Area = 0.096 ac,100.00% Impervious, Inflow Depth = 5.06" for 25-Year event
Inflow = 0.50 cfs @ 12.07 hrs, Volume= 0.041 af
Outflow = 0.50 cfs @ 12.07 hrs, Volume= 0.041 af, Atten= 1%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.57 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.18 fps, Avg. Travel Time= 0.2 min

Peak Storage= 2 cf @ 12.07 hrs
Average Depth at Peak Storage= 0.23'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 4.20 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 14.4' Slope= 0.0139 '/'
Inlet Invert= 899.93', Outlet Invert= 899.73'





Summary for Reach CB-E: TO DMH-B

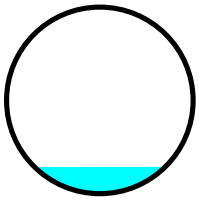
[52] Hint: Inlet/Outlet conditions not evaluated

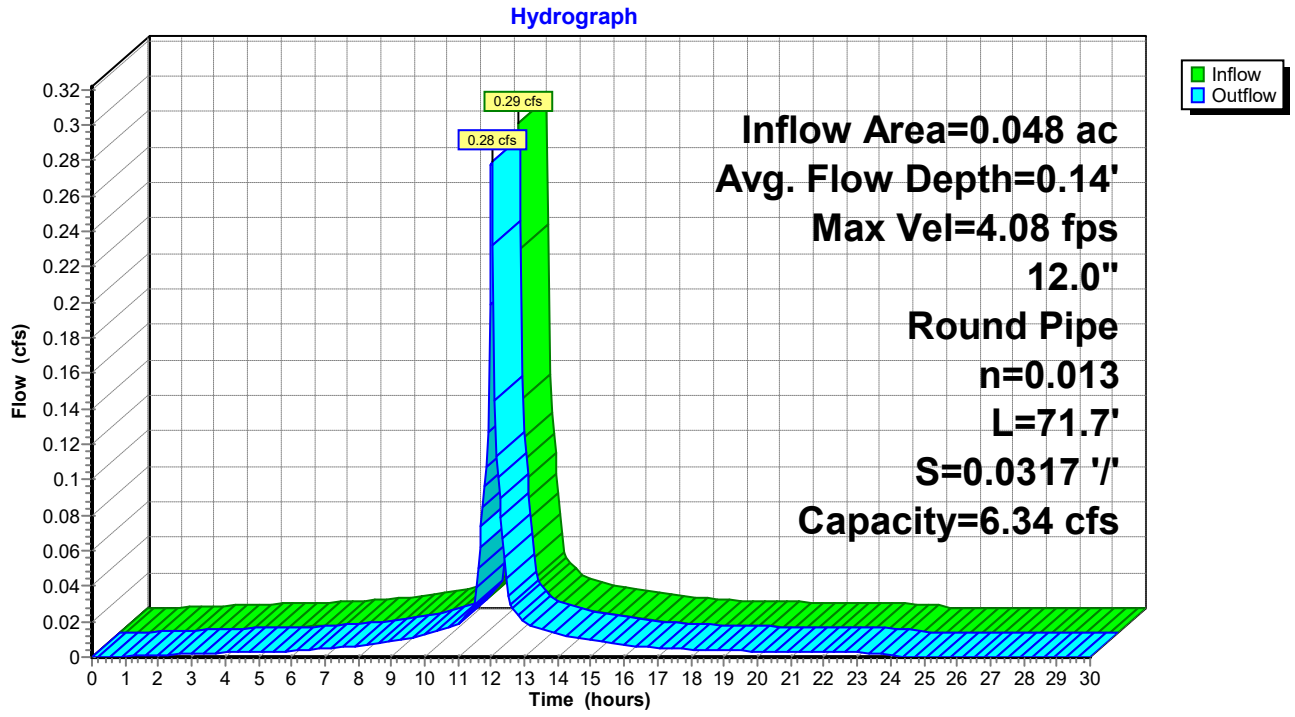
Inflow Area = 0.048 ac,100.00% Impervious, Inflow Depth = 5.06" for 25-Year event
Inflow = 0.29 cfs @ 12.00 hrs, Volume= 0.020 af
Outflow = 0.28 cfs @ 12.01 hrs, Volume= 0.020 af, Atten= 3%, Lag= 0.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.08 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 1.30 fps, Avg. Travel Time= 0.9 min

Peak Storage= 5 cf @ 12.00 hrs
Average Depth at Peak Storage= 0.14'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 6.34 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 71.7' Slope= 0.0317 '/'
Inlet Invert= 902.00', Outlet Invert= 899.73'





Summary for Reach DCB-C: TO DMH-A

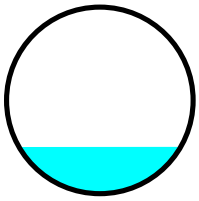
[52] Hint: Inlet/Outlet conditions not evaluated

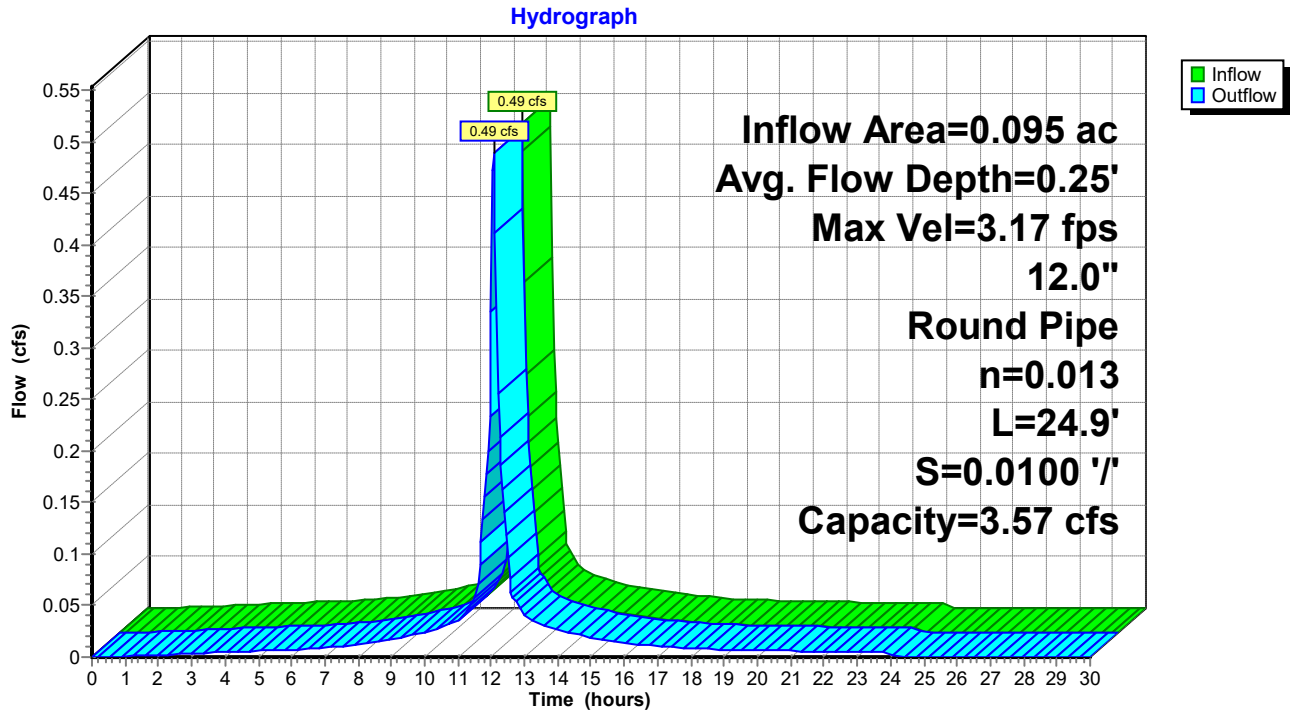
Inflow Area = 0.095 ac,100.00% Impervious, Inflow Depth = 5.06" for 25-Year event
Inflow = 0.49 cfs @ 12.07 hrs, Volume= 0.040 af
Outflow = 0.49 cfs @ 12.07 hrs, Volume= 0.040 af, Atten= 1%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.17 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.05 fps, Avg. Travel Time= 0.4 min

Peak Storage= 4 cf @ 12.07 hrs
Average Depth at Peak Storage= 0.25'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.57 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 24.9' Slope= 0.0100 '/'
Inlet Invert= 902.74', Outlet Invert= 902.49'





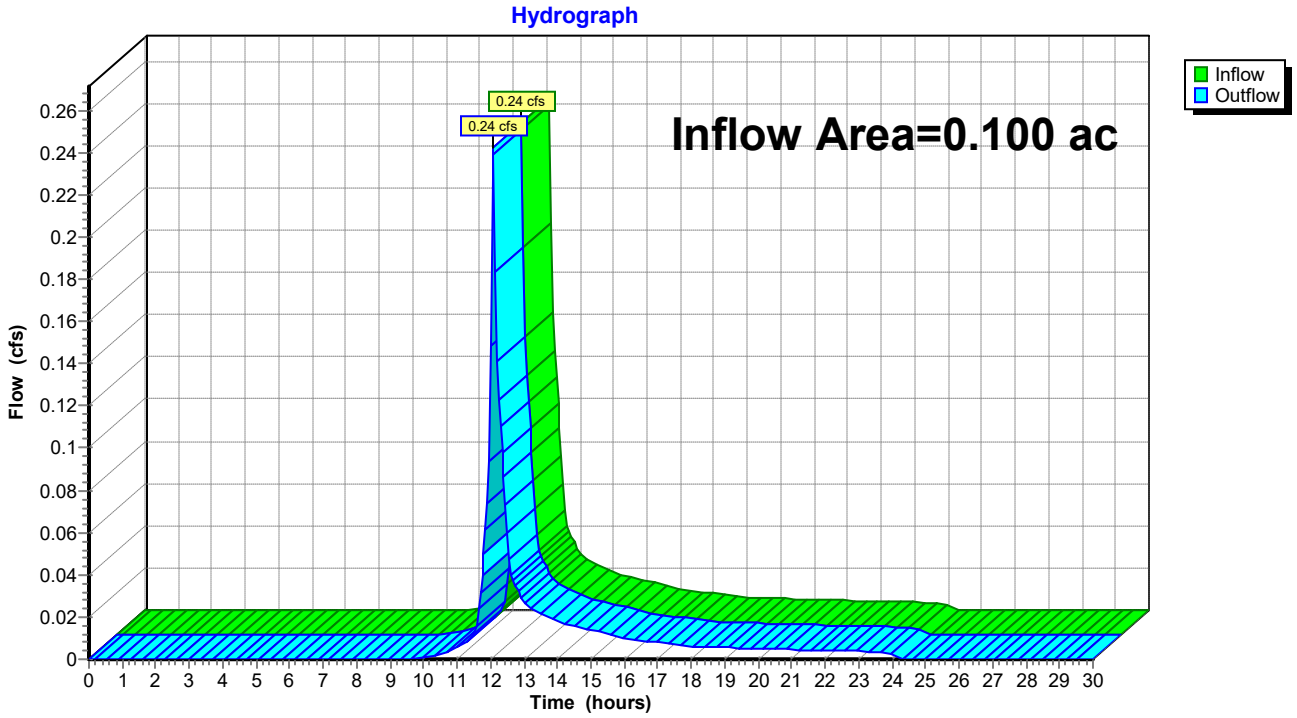
Summary for Reach DCB-F: (new Reach)

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.100 ac, 49.10% Impervious, Inflow Depth = 2.09" for 25-Year event
Inflow = 0.24 cfs @ 12.08 hrs, Volume= 0.018 af
Outflow = 0.24 cfs @ 12.08 hrs, Volume= 0.018 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DCB-F: (new Reach)



Summary for Reach DCB1: TO DMH1

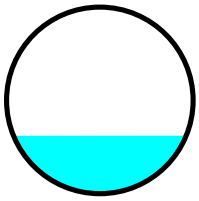
[52] Hint: Inlet/Outlet conditions not evaluated

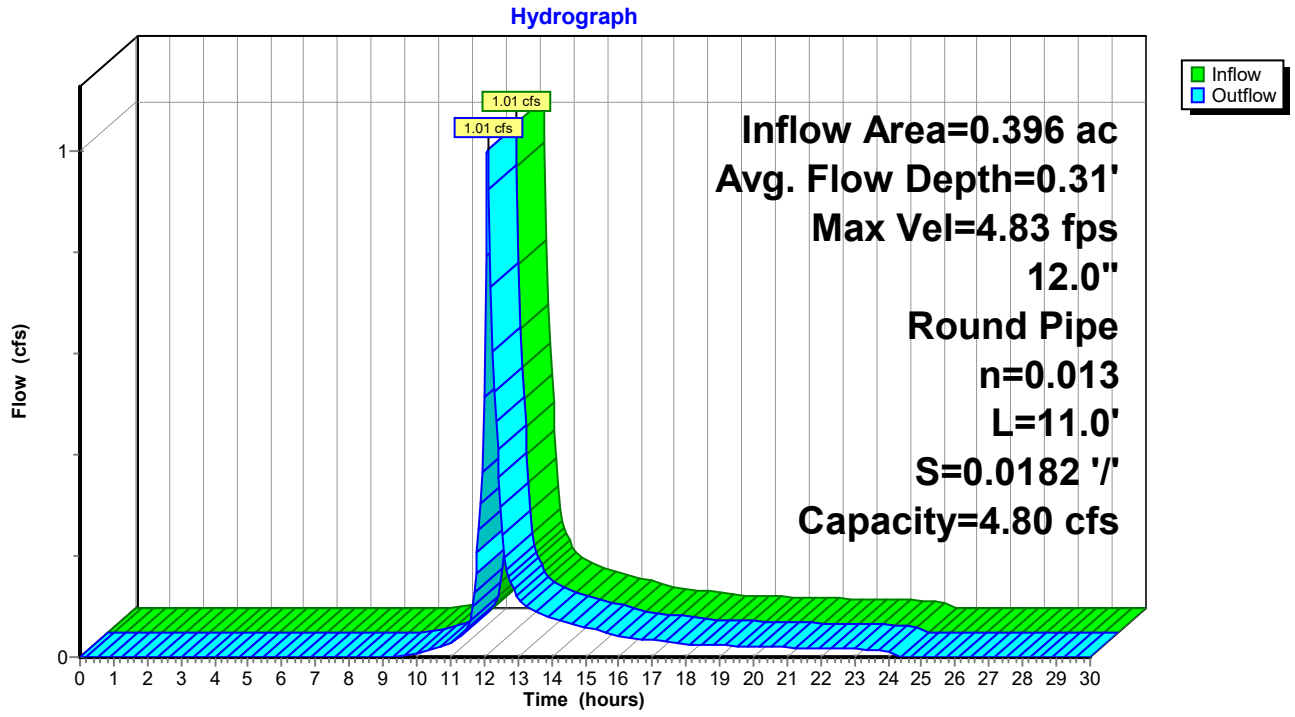
Inflow Area = 0.396 ac, 26.33% Impervious, Inflow Depth = 2.32" for 25-Year event
Inflow = 1.01 cfs @ 12.11 hrs, Volume= 0.077 af
Outflow = 1.01 cfs @ 12.11 hrs, Volume= 0.077 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.83 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 1.81 fps, Avg. Travel Time= 0.1 min

Peak Storage= 2 cf @ 12.11 hrs
Average Depth at Peak Storage= 0.31'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 4.80 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 11.0' Slope= 0.0182 '/'
Inlet Invert= 896.60', Outlet Invert= 896.40'





Summary for Reach DCB2: TO DMH#1

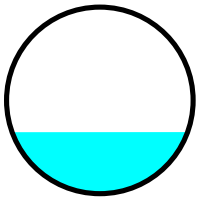
[52] Hint: Inlet/Outlet conditions not evaluated

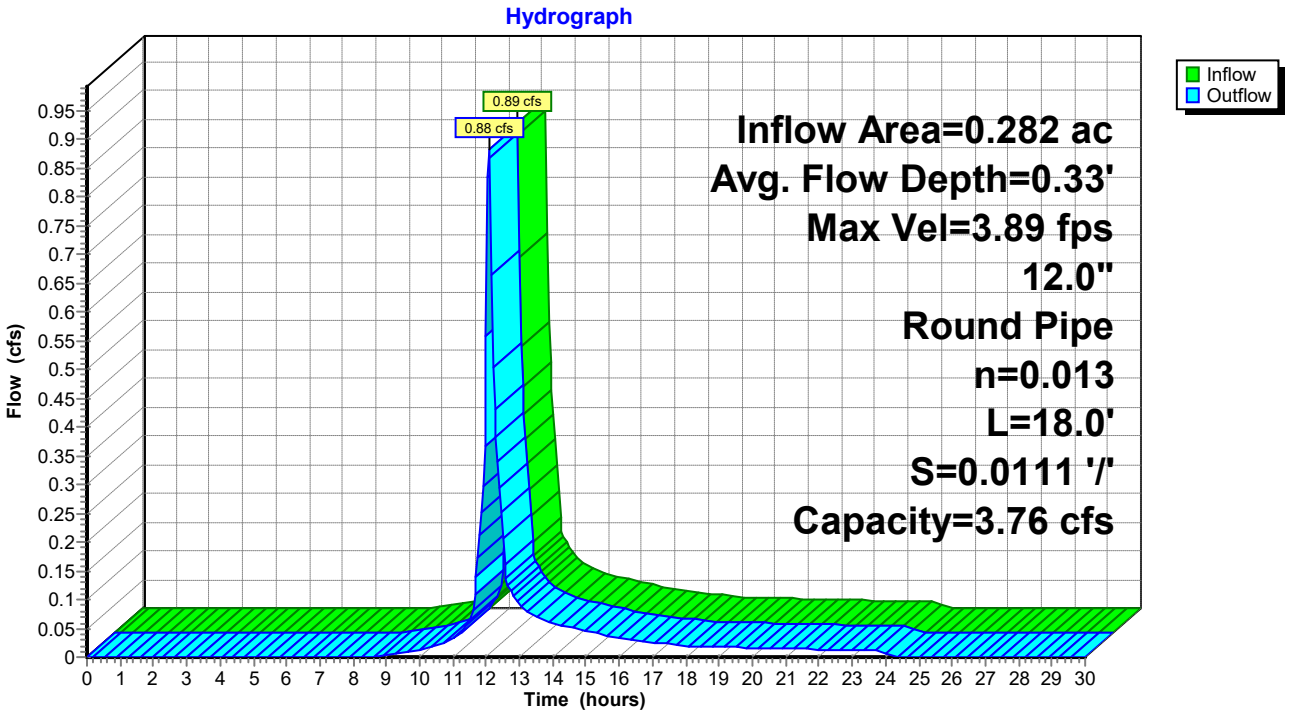
Inflow Area = 0.282 ac, 37.25% Impervious, Inflow Depth = 2.68" for 25-Year event
Inflow = 0.89 cfs @ 12.08 hrs, Volume= 0.063 af
Outflow = 0.88 cfs @ 12.08 hrs, Volume= 0.063 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.89 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.41 fps, Avg. Travel Time= 0.2 min

Peak Storage= 4 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.33'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.76 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 18.0' Slope= 0.0111 '/'
Inlet Invert= 896.60', Outlet Invert= 896.40'





Summary for Reach DMH-A: TO DMH-D

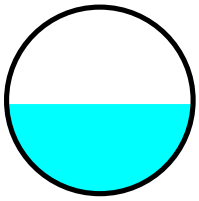
[52] Hint: Inlet/Outlet conditions not evaluated
[62] Hint: Exceeded Reach CB-B OUTLET depth by 0.08' @ 12.10 hrs
[62] Hint: Exceeded Reach DCB-C OUTLET depth by 0.14' @ 12.10 hrs

Inflow Area = 0.295 ac, 64.06% Impervious, Inflow Depth = 3.67" for 25-Year event
Inflow = 1.19 cfs @ 12.08 hrs, Volume= 0.090 af
Outflow = 1.13 cfs @ 12.12 hrs, Volume= 0.090 af, Atten= 5%, Lag= 2.4 min

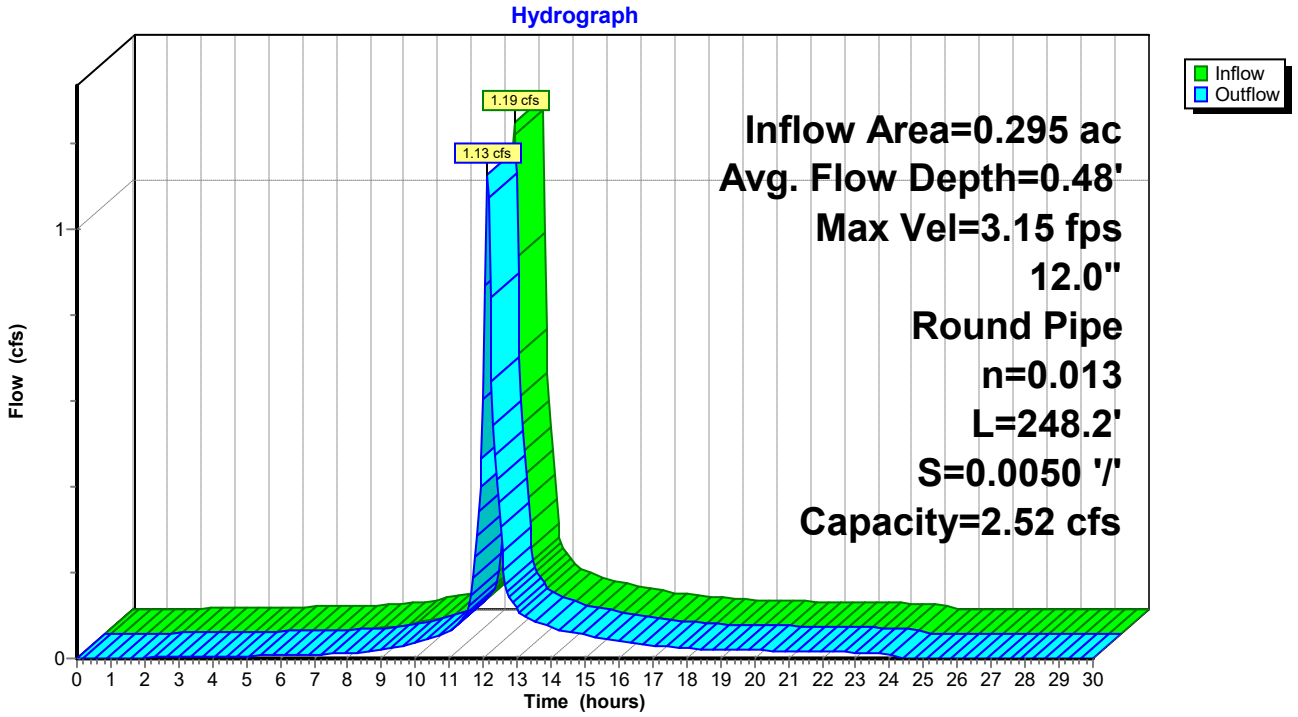
Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.15 fps, Min. Travel Time= 1.3 min
Avg. Velocity = 0.98 fps, Avg. Travel Time= 4.2 min

Peak Storage= 93 cf @ 12.10 hrs
Average Depth at Peak Storage= 0.48'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.52 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 248.2' Slope= 0.0050 '/'
Inlet Invert= 902.39', Outlet Invert= 901.15'



Reach DMH-A: TO DMH-D



Summary for Reach DMH-B: TO DMH-C

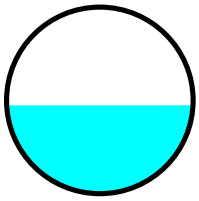
[52] Hint: Inlet/Outlet conditions not evaluated

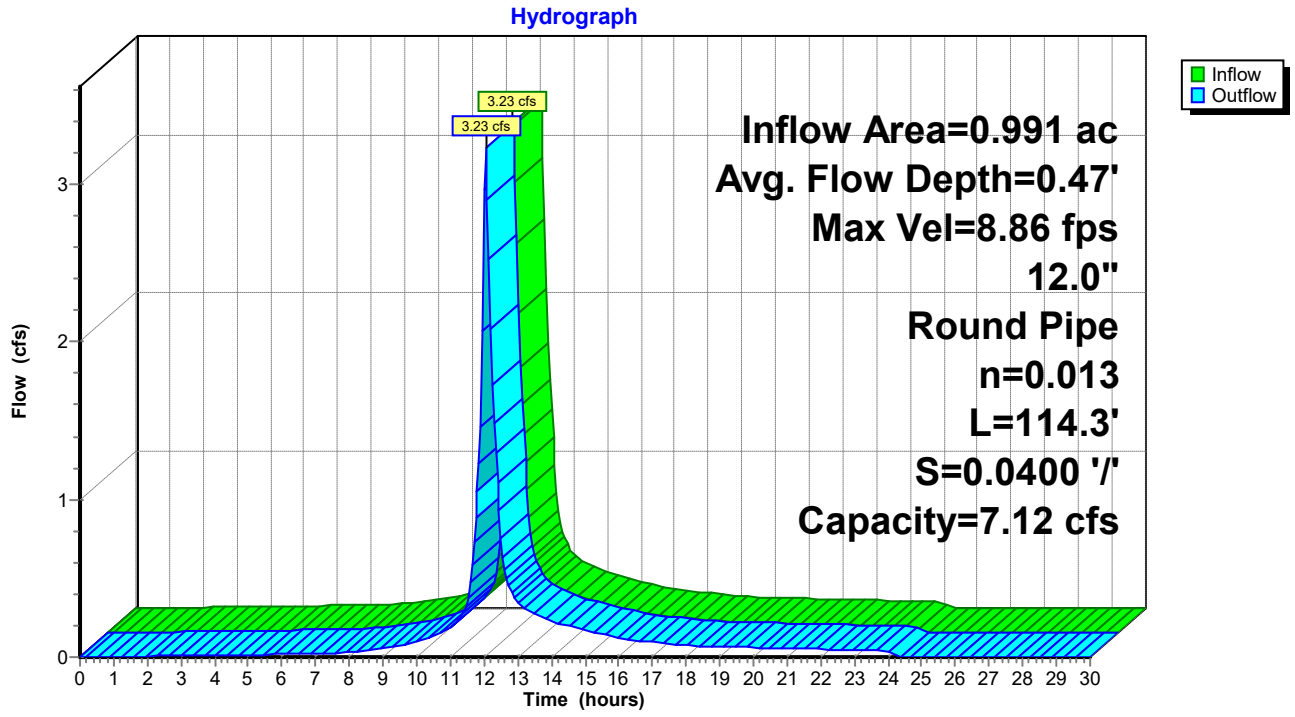
Inflow Area = 0.991 ac, 58.24% Impervious, Inflow Depth = 3.35" for 25-Year event
Inflow = 3.23 cfs @ 12.04 hrs, Volume= 0.276 af
Outflow = 3.23 cfs @ 12.05 hrs, Volume= 0.276 af, Atten= 0%, Lag= 0.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.86 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 2.83 fps, Avg. Travel Time= 0.7 min

Peak Storage= 42 cf @ 12.04 hrs
Average Depth at Peak Storage= 0.47'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 7.12 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 114.3' Slope= 0.0400 '/'
Inlet Invert= 894.99', Outlet Invert= 890.42'





Summary for Reach DMH-C: TO S. BASIN

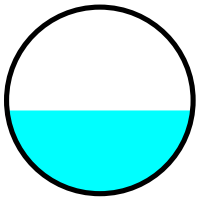
[52] Hint: Inlet/Outlet conditions not evaluated

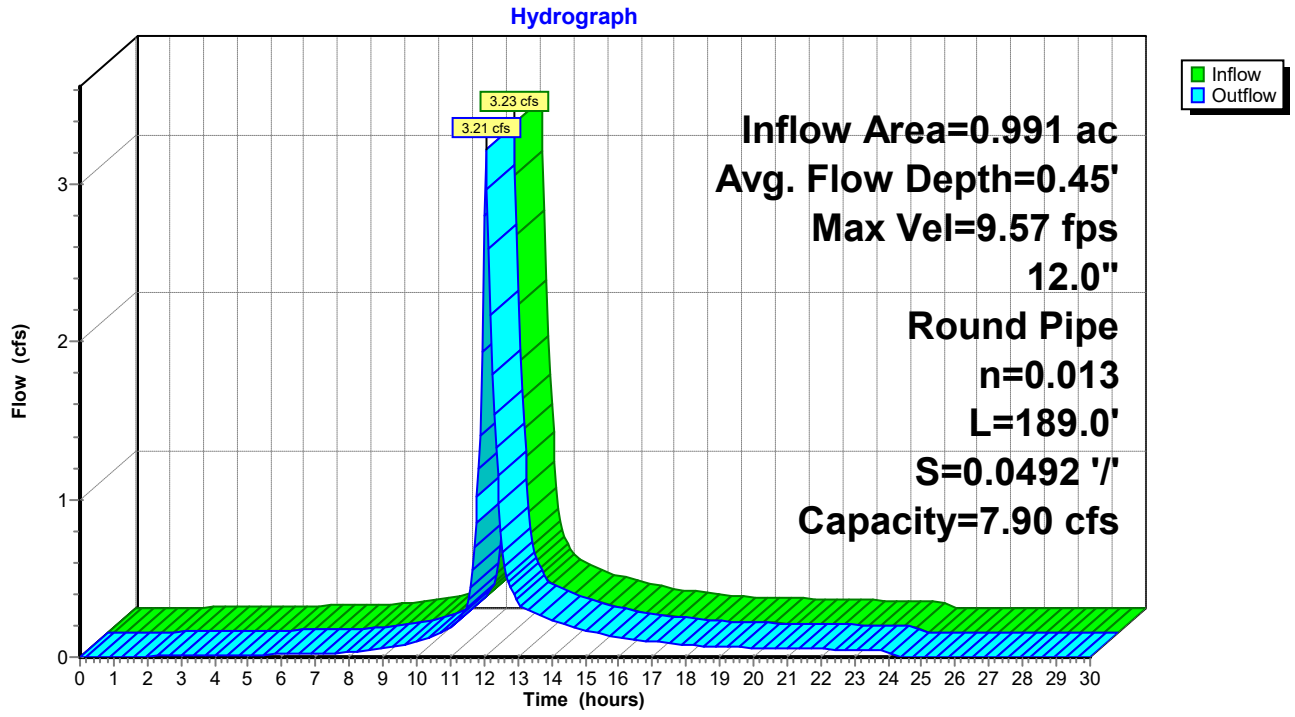
Inflow Area = 0.991 ac, 58.24% Impervious, Inflow Depth = 3.35" for 25-Year event
Inflow = 3.23 cfs @ 12.05 hrs, Volume= 0.276 af
Outflow = 3.21 cfs @ 12.06 hrs, Volume= 0.276 af, Atten= 0%, Lag= 0.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 9.57 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 3.05 fps, Avg. Travel Time= 1.0 min

Peak Storage= 64 cf @ 12.05 hrs
Average Depth at Peak Storage= 0.45'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 7.90 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 189.0' Slope= 0.0492 '/'
Inlet Invert= 888.30', Outlet Invert= 879.00'





Summary for Reach DMH-D: TO DMH-B

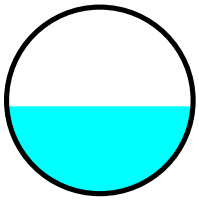
[52] Hint: Inlet/Outlet conditions not evaluated

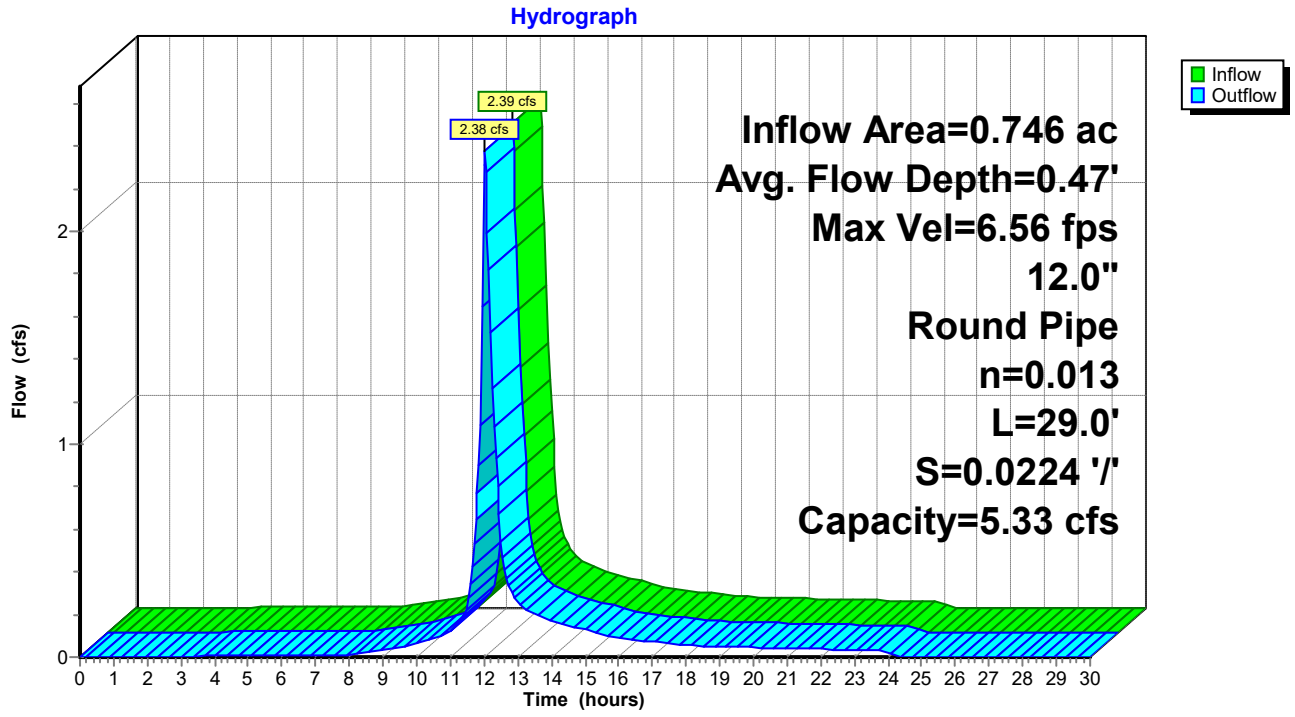
Inflow Area = 0.746 ac, 51.38% Impervious, Inflow Depth = 3.19" for 25-Year event
Inflow = 2.39 cfs @ 12.02 hrs, Volume= 0.198 af
Outflow = 2.38 cfs @ 12.02 hrs, Volume= 0.198 af, Atten= 1%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.56 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 2.04 fps, Avg. Travel Time= 0.2 min

Peak Storage= 11 cf @ 12.02 hrs
Average Depth at Peak Storage= 0.47'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 5.33 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 29.0' Slope= 0.0224 '/'
Inlet Invert= 900.38', Outlet Invert= 899.73'





Summary for Reach DMH1: TO DMH#2

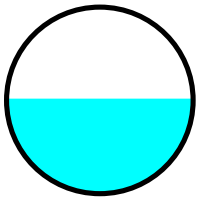
[52] Hint: Inlet/Outlet conditions not evaluated
[61] Hint: Exceeded Reach DCB1 outlet invert by 0.31' @ 12.10 hrs
[61] Hint: Exceeded Reach DCB2 outlet invert by 0.31' @ 12.10 hrs

Inflow Area = 0.678 ac, 30.87% Impervious, Inflow Depth = 2.47" for 25-Year event
Inflow = 1.87 cfs @ 12.10 hrs, Volume= 0.140 af
Outflow = 1.80 cfs @ 12.12 hrs, Volume= 0.140 af, Atten= 4%, Lag= 1.3 min

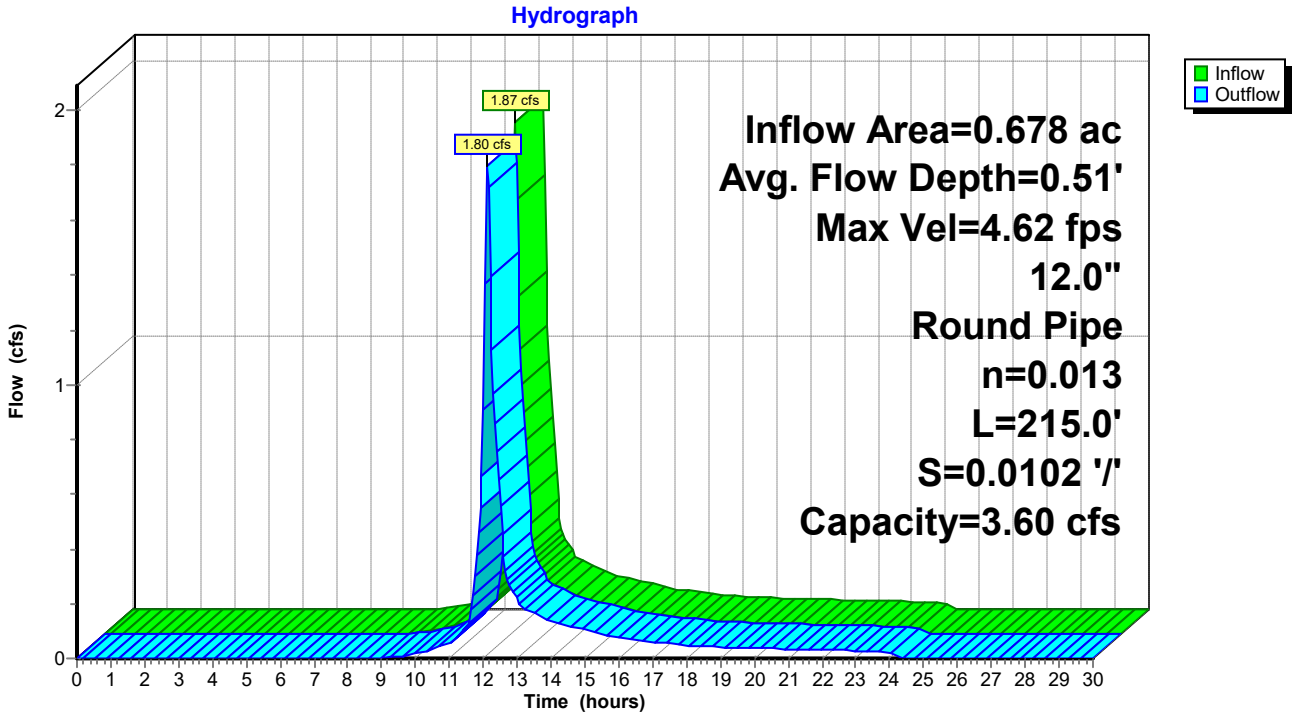
Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.62 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 1.69 fps, Avg. Travel Time= 2.1 min

Peak Storage= 86 cf @ 12.11 hrs
Average Depth at Peak Storage= 0.51'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.60 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 215.0' Slope= 0.0102 '/'
Inlet Invert= 896.20', Outlet Invert= 894.00'



Reach DMH1: TO DMH#2



Summary for Reach DMH2: TO D.BASIN#13

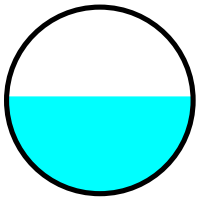
[52] Hint: Inlet/Outlet conditions not evaluated
[61] Hint: Exceeded Reach DMH1 outlet invert by 0.42' @ 12.15 hrs

Inflow Area = 0.678 ac, 30.87% Impervious, Inflow Depth = 2.47" for 25-Year event
Inflow = 1.80 cfs @ 12.12 hrs, Volume= 0.140 af
Outflow = 1.74 cfs @ 12.15 hrs, Volume= 0.140 af, Atten= 3%, Lag= 1.8 min

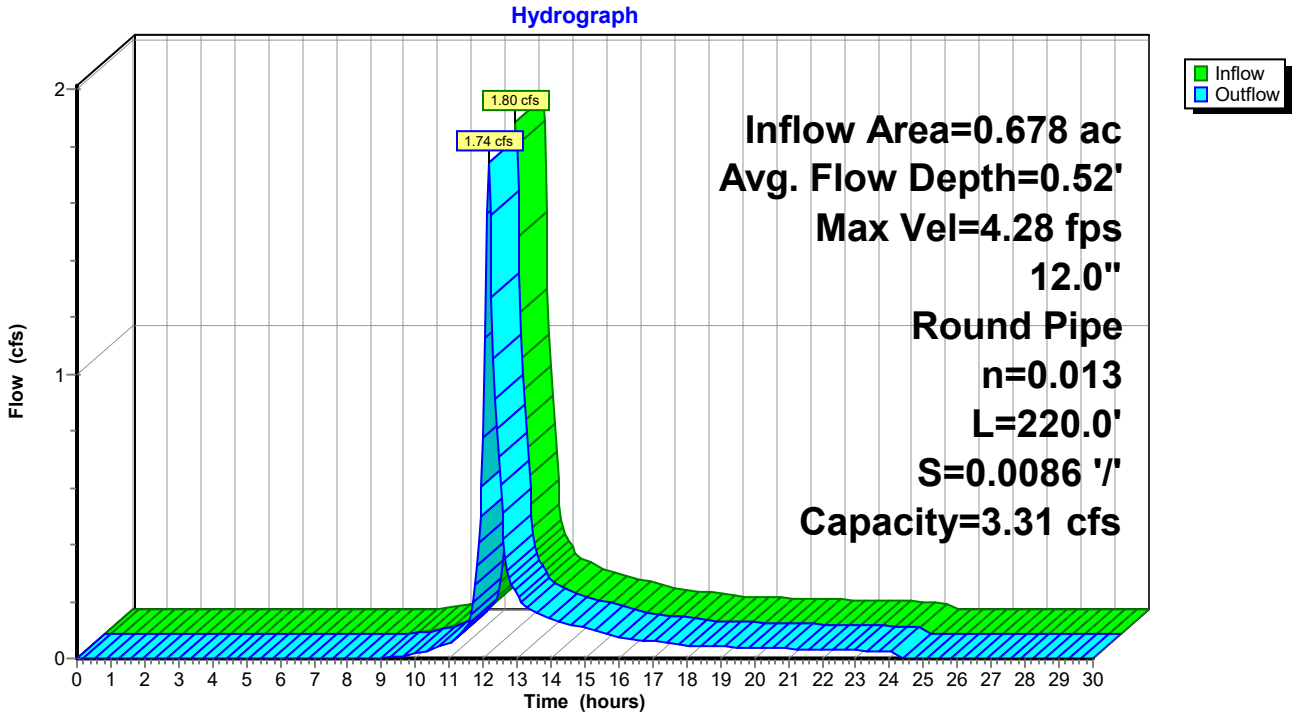
Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.28 fps, Min. Travel Time= 0.9 min
Avg. Velocity = 1.57 fps, Avg. Travel Time= 2.3 min

Peak Storage= 91 cf @ 12.14 hrs
Average Depth at Peak Storage= 0.52'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.31 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 220.0' Slope= 0.0086 '/'
Inlet Invert= 893.90', Outlet Invert= 892.00'



Reach DMH2: TO D.BASIN#13



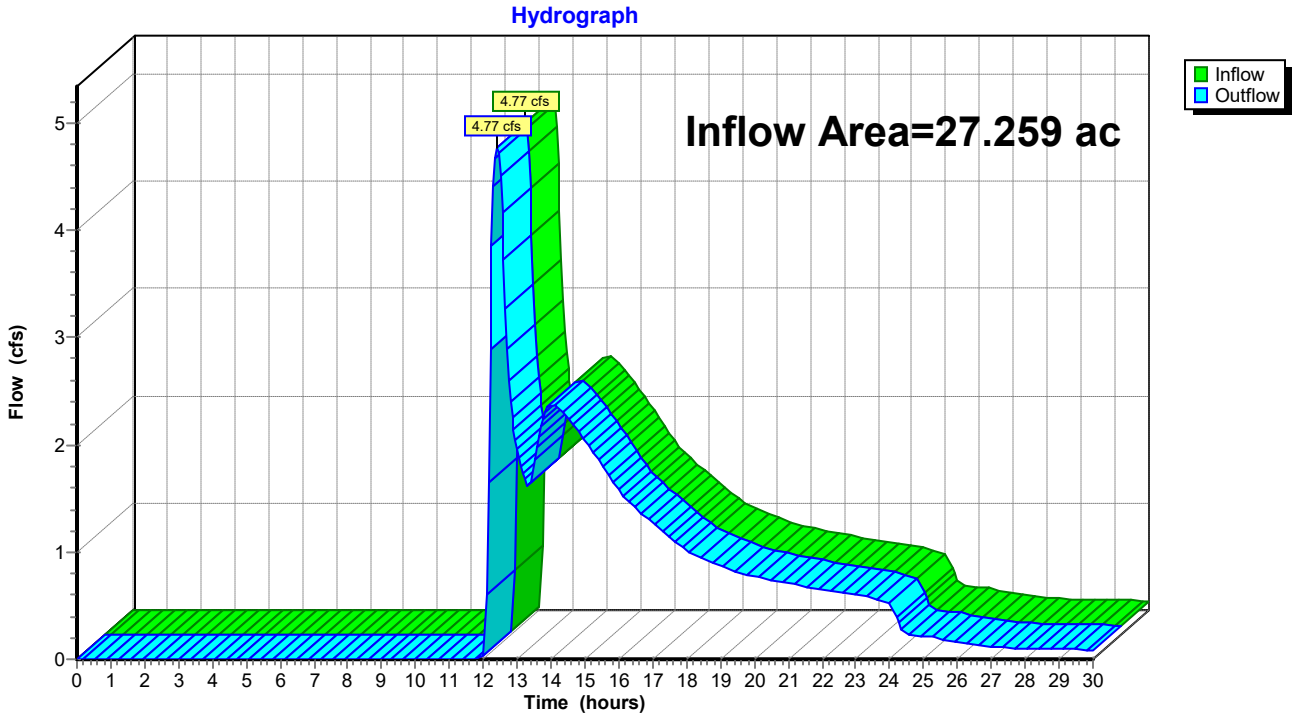
Summary for Reach DP1: DP#1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 27.259 ac, 0.48% Impervious, Inflow Depth > 0.61" for 25-Year event
Inflow = 4.77 cfs @ 12.41 hrs, Volume= 1.385 af
Outflow = 4.77 cfs @ 12.41 hrs, Volume= 1.385 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP1: DP#1



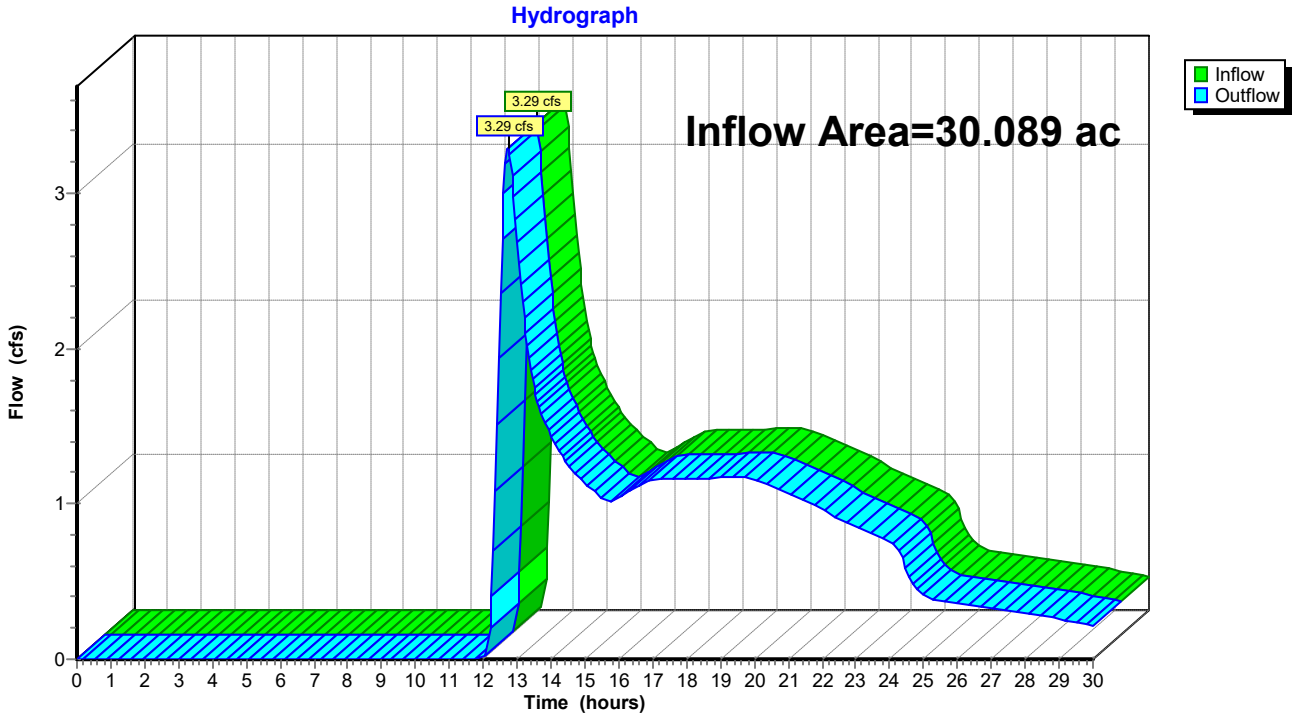
Summary for Reach DP12: DP12

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 30.089 ac, 0.70% Impervious, Inflow Depth > 0.55" for 25-Year event
Inflow = 3.29 cfs @ 12.73 hrs, Volume= 1.372 af
Outflow = 3.29 cfs @ 12.73 hrs, Volume= 1.372 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP12: DP12



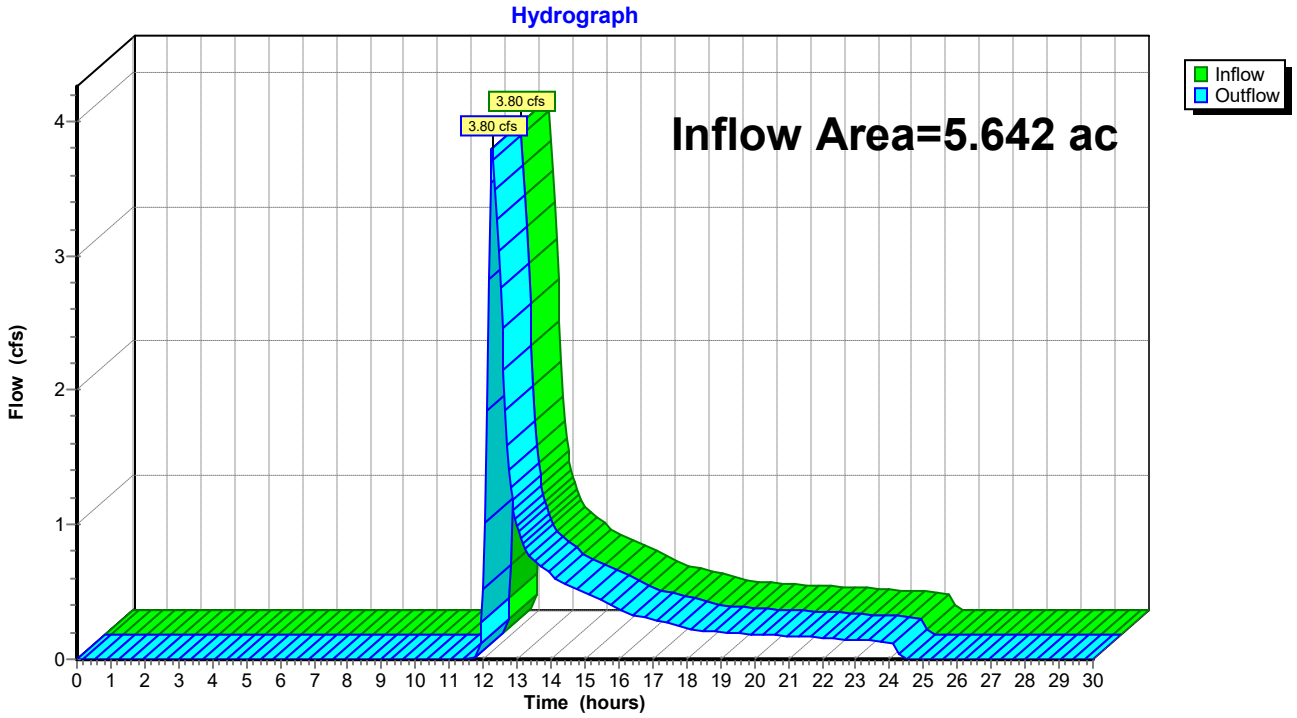
Summary for Reach DP13: DP131

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 5.642 ac, 0.00% Impervious, Inflow Depth = 0.99" for 25-Year event
Inflow = 3.80 cfs @ 12.26 hrs, Volume= 0.467 af
Outflow = 3.80 cfs @ 12.26 hrs, Volume= 0.467 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP13: DP131



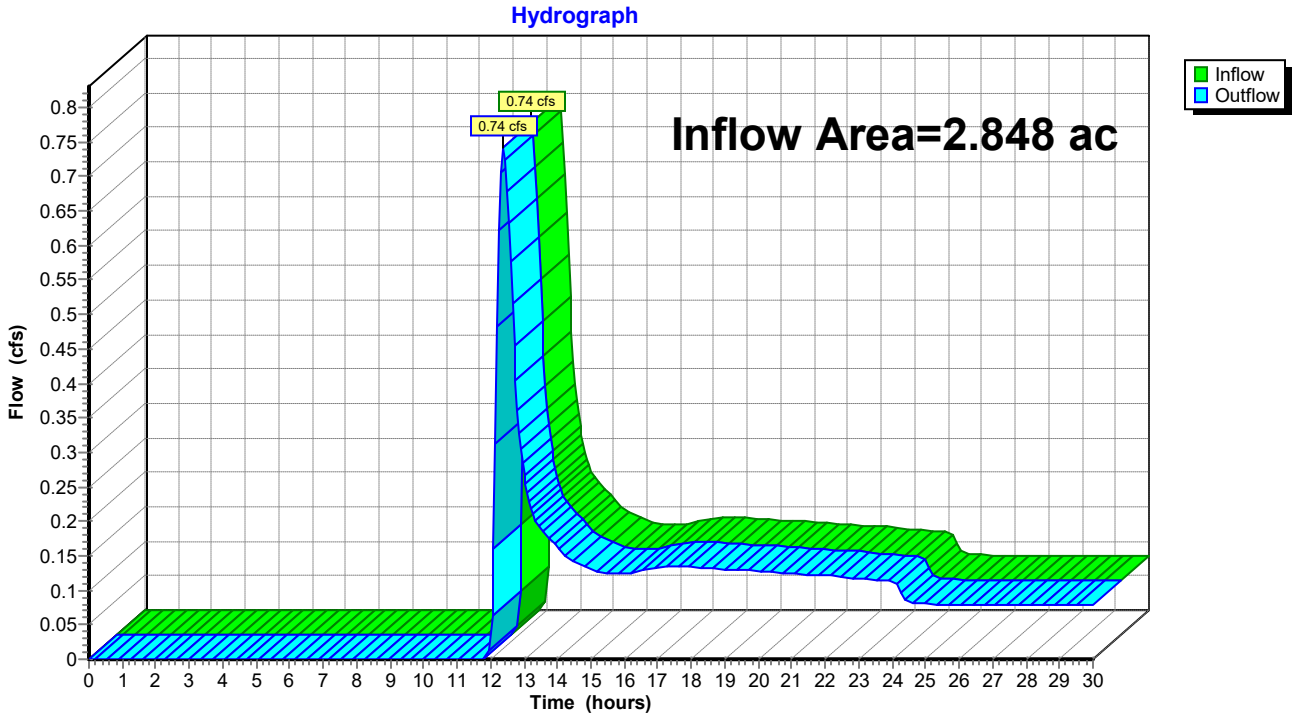
Summary for Reach DP14: DP14

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 2.848 ac, 0.00% Impervious, Inflow Depth > 0.84" for 25-Year event
Inflow = 0.74 cfs @ 12.37 hrs, Volume= 0.200 af
Outflow = 0.74 cfs @ 12.37 hrs, Volume= 0.200 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP14: DP14



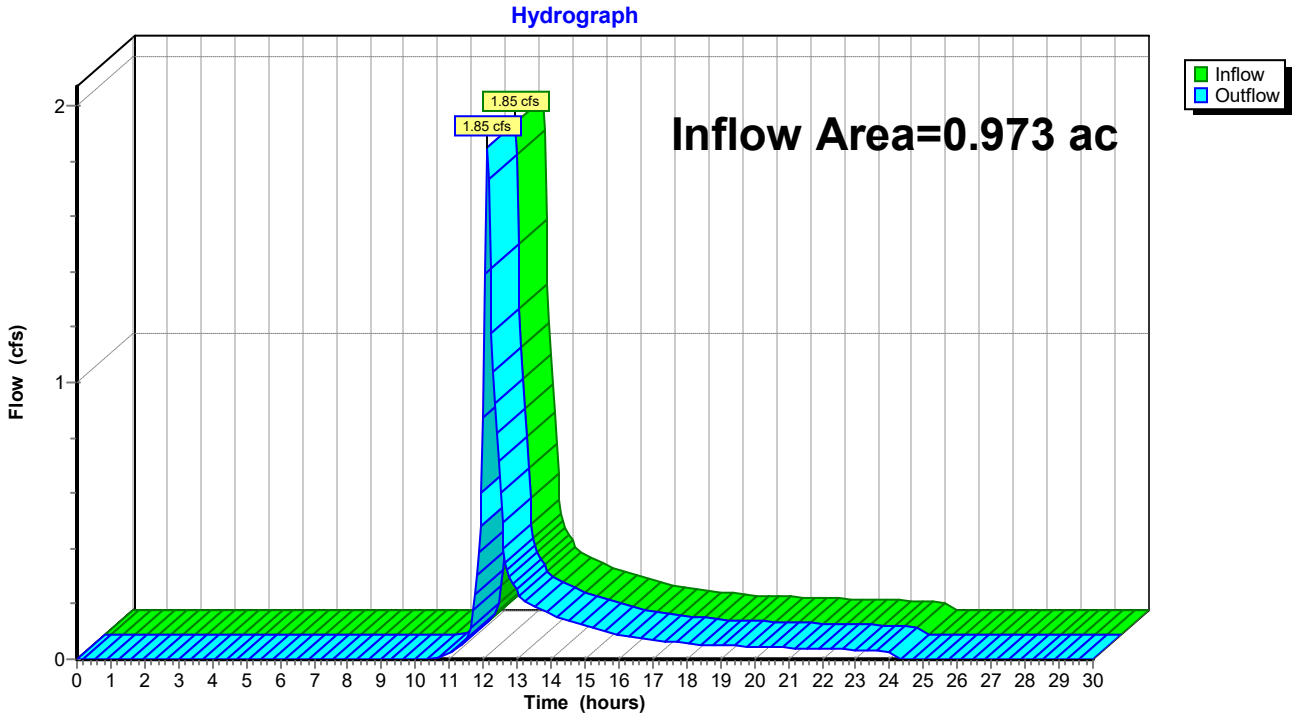
Summary for Reach DP15: DP15

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.973 ac, 10.17% Impervious, Inflow Depth = 1.81" for 25-Year event
Inflow = 1.85 cfs @ 12.12 hrs, Volume= 0.147 af
Outflow = 1.85 cfs @ 12.12 hrs, Volume= 0.147 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP15: DP15



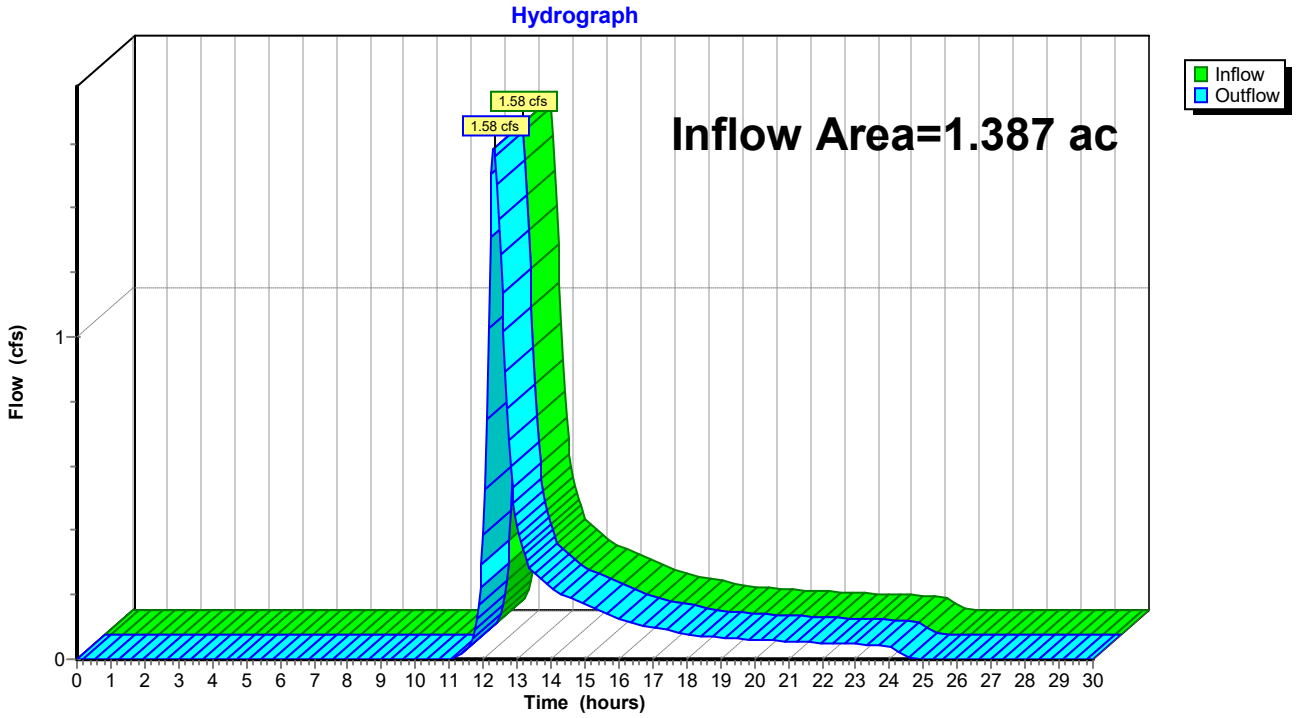
Summary for Reach DP16: DP16

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.387 ac, 10.83% Impervious, Inflow Depth = 1.58" for 25-Year event
Inflow = 1.58 cfs @ 12.31 hrs, Volume= 0.183 af
Outflow = 1.58 cfs @ 12.31 hrs, Volume= 0.183 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP16: DP16



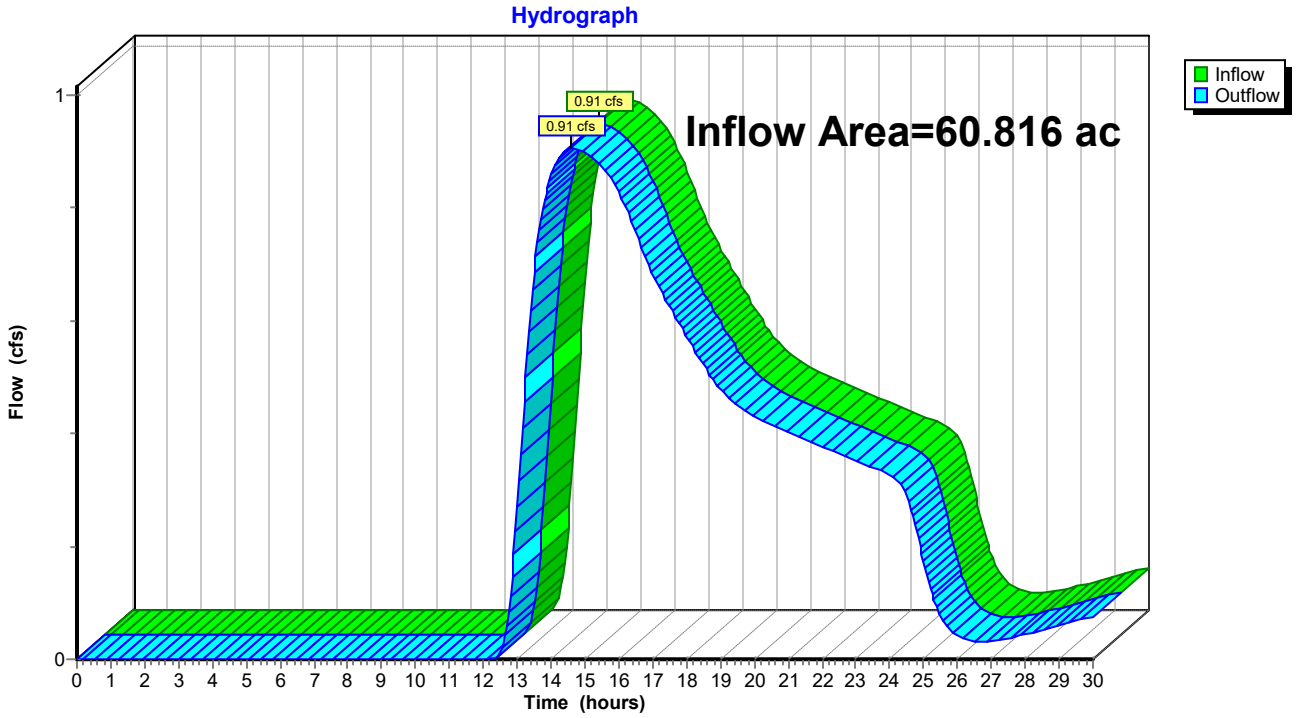
Summary for Reach DP2: DP#2

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 60.816 ac, 1.81% Impervious, Inflow Depth > 0.11" for 25-Year event
Inflow = 0.91 cfs @ 14.61 hrs, Volume= 0.569 af
Outflow = 0.91 cfs @ 14.61 hrs, Volume= 0.569 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP2: DP#2



Summary for Reach OL1: (new Reach)

[79] Warning: Submerged Pond DB11 Primary device # 2 OUTLET by 0.01'

Inflow Area = 17.764 ac, 1.27% Impervious, Inflow Depth > 0.08" for 25-Year event
Inflow = 0.08 cfs @ 12.75 hrs, Volume= 0.116 af
Outflow = 0.08 cfs @ 17.80 hrs, Volume= 0.114 af, Atten= 0%, Lag= 303.0 min

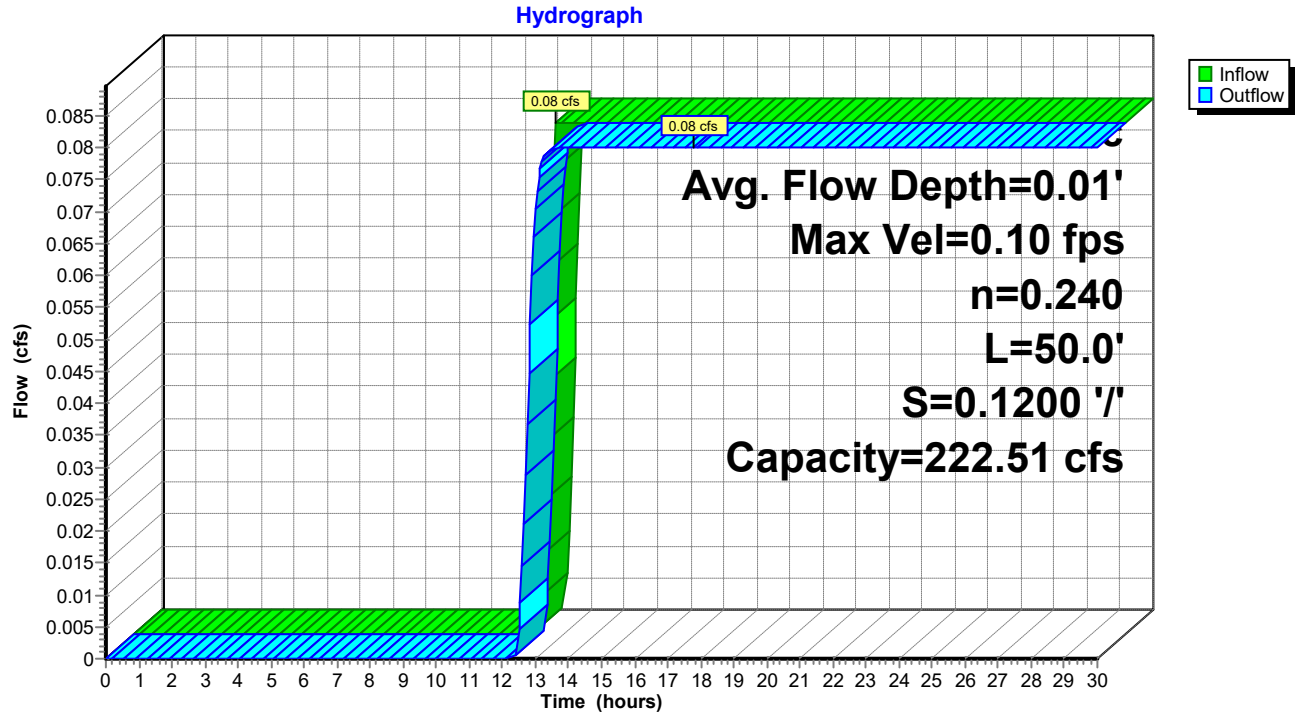
Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.10 fps, Min. Travel Time= 8.4 min
Avg. Velocity = 0.10 fps, Avg. Travel Time= 8.4 min

Peak Storage= 40 cf @ 17.60 hrs
Average Depth at Peak Storage= 0.01'
Bank-Full Depth= 1.00' Flow Area= 110.0 sf, Capacity= 222.51 cfs

100.00' x 1.00' deep channel, n= 0.240 Sheet flow over Dense Grass
Side Slope Z-value= 10.0 '/' Top Width= 120.00'
Length= 50.0' Slope= 0.1200 '/'
Inlet Invert= 878.00', Outlet Invert= 872.00'

‡

Reach OL1: (new Reach)



Summary for Reach OL121: WOODS-4

[79] Warning: Submerged Pond DB12 Primary device # 2 OUTLET by 0.03'

Inflow Area = 7.158 ac, 0.00% Impervious, Inflow Depth > 0.53" for 25-Year event
Inflow = 0.58 cfs @ 13.70 hrs, Volume= 0.313 af
Outflow = 0.57 cfs @ 13.85 hrs, Volume= 0.312 af, Atten= 0%, Lag= 8.5 min

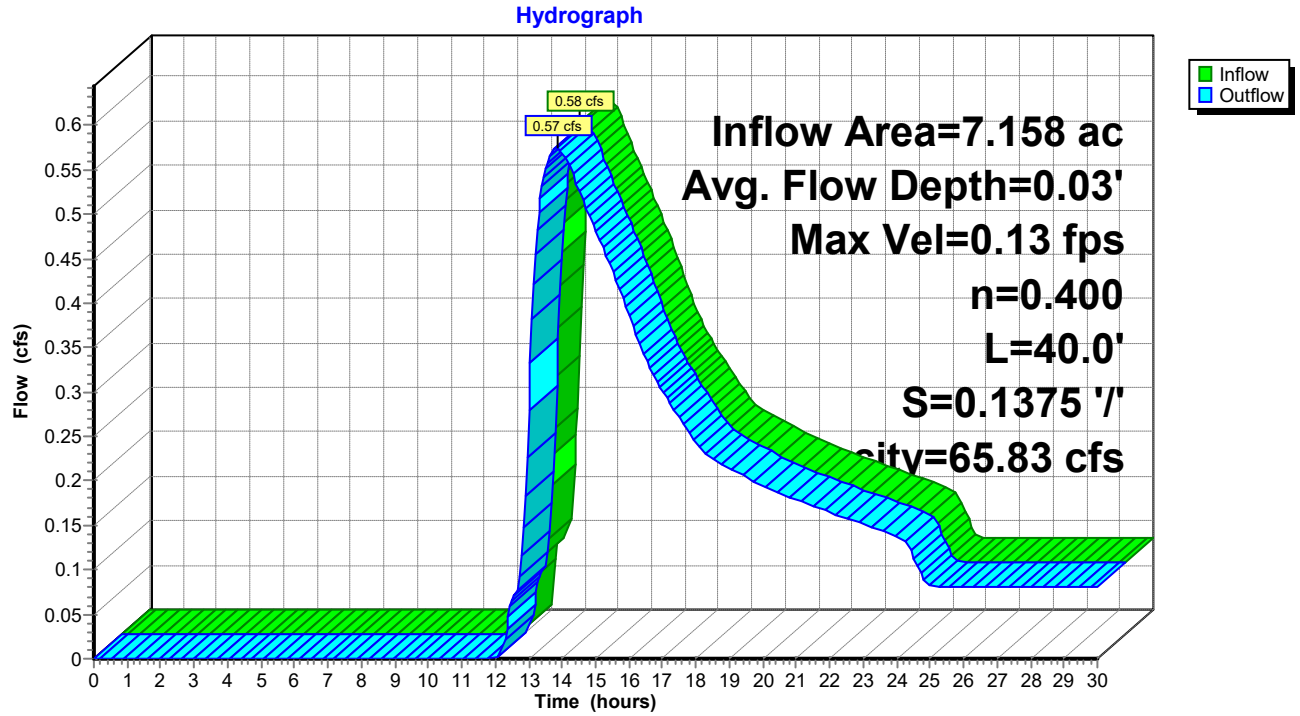
Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.13 fps, Min. Travel Time= 5.1 min
Avg. Velocity = 0.08 fps, Avg. Travel Time= 8.0 min

Peak Storage= 176 cf @ 13.76 hrs
Average Depth at Peak Storage= 0.03'
Bank-Full Depth= 0.50' Flow Area= 77.5 sf, Capacity= 65.83 cfs

150.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 160.00'
Length= 40.0' Slope= 0.1375 '/'
Inlet Invert= 881.50', Outlet Invert= 876.00'

‡

Reach OL121: WOODS-4



Summary for Reach OL122: WOODS-4

[62] Hint: Exceeded Reach OL121 OUTLET depth by 0.03' @ 16.35 hrs

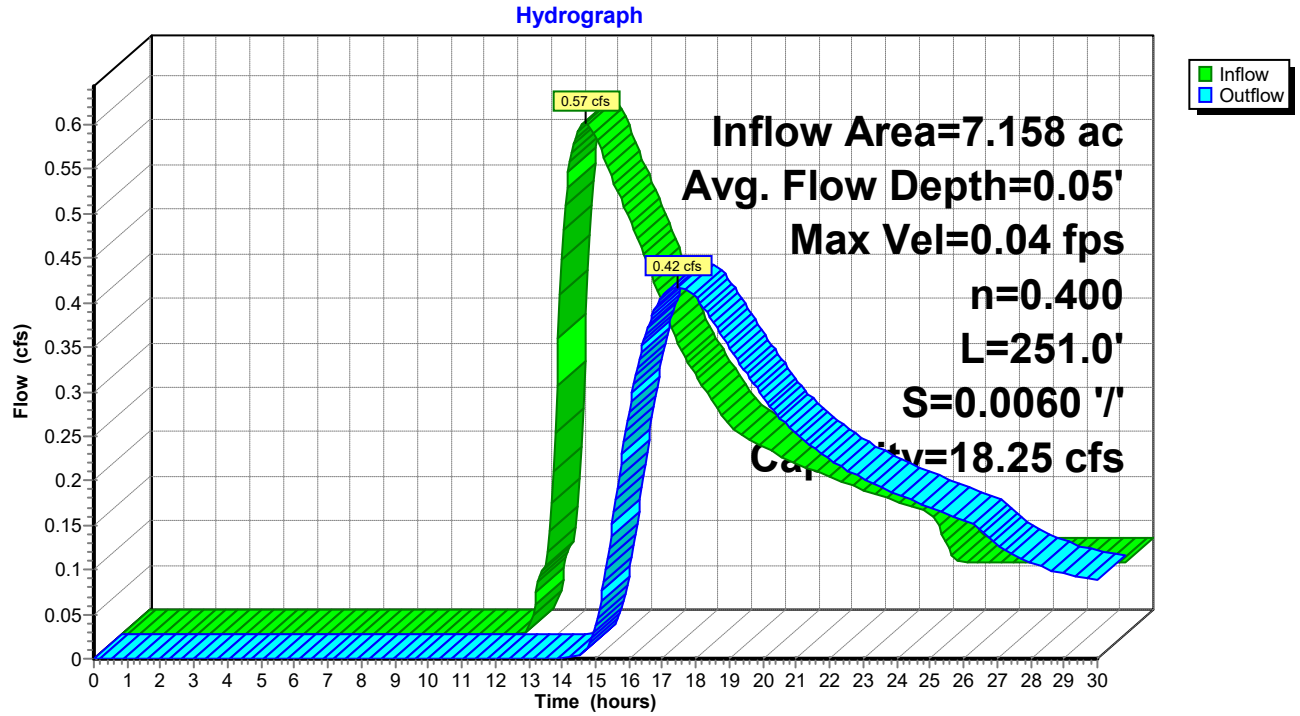
Inflow Area = 7.158 ac, 0.00% Impervious, Inflow Depth > 0.52" for 25-Year event
Inflow = 0.57 cfs @ 13.85 hrs, Volume= 0.312 af
Outflow = 0.42 cfs @ 17.45 hrs, Volume= 0.276 af, Atten= 27%, Lag= 216.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.04 fps, Min. Travel Time= 104.5 min
Avg. Velocity = 0.03 fps, Avg. Travel Time= 149.0 min

Peak Storage= 2,621 cf @ 15.71 hrs
Average Depth at Peak Storage= 0.05'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 18.25 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 251.0' Slope= 0.0060 '/'
Inlet Invert= 876.00', Outlet Invert= 874.50'

Reach OL122: WOODS-4



Summary for Reach OL123: GRASS

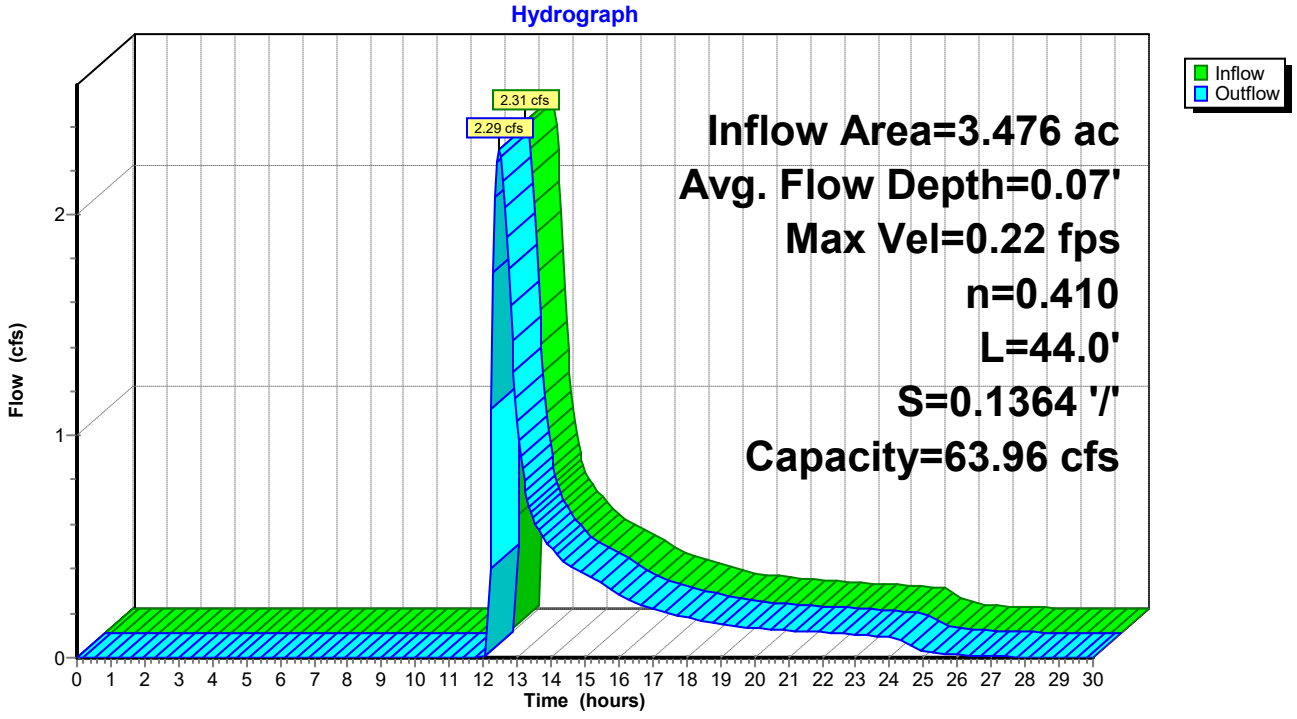
Inflow Area = 3.476 ac, 6.03% Impervious, Inflow Depth > 1.18" for 25-Year event
Inflow = 2.31 cfs @ 12.38 hrs, Volume= 0.343 af
Outflow = 2.29 cfs @ 12.47 hrs, Volume= 0.343 af, Atten= 1%, Lag= 5.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.22 fps, Min. Travel Time= 3.3 min
Avg. Velocity = 0.08 fps, Avg. Travel Time= 9.6 min

Peak Storage= 453 cf @ 12.42 hrs
Average Depth at Peak Storage= 0.07'
Bank-Full Depth= 0.50' Flow Area= 77.5 sf, Capacity= 63.96 cfs

150.00' x 0.50' deep channel, n= 0.410 Sheet flow over Bermuda Grass
Side Slope Z-value= 10.0 '/' Top Width= 160.00'
Length= 44.0' Slope= 0.1364 '/'
Inlet Invert= 887.00', Outlet Invert= 881.00'

Reach OL123: GRASS



Summary for Reach OL124: WOODS-4

[62] Hint: Exceeded Reach OL123 OUTLET depth by 0.02' @ 12.80 hrs

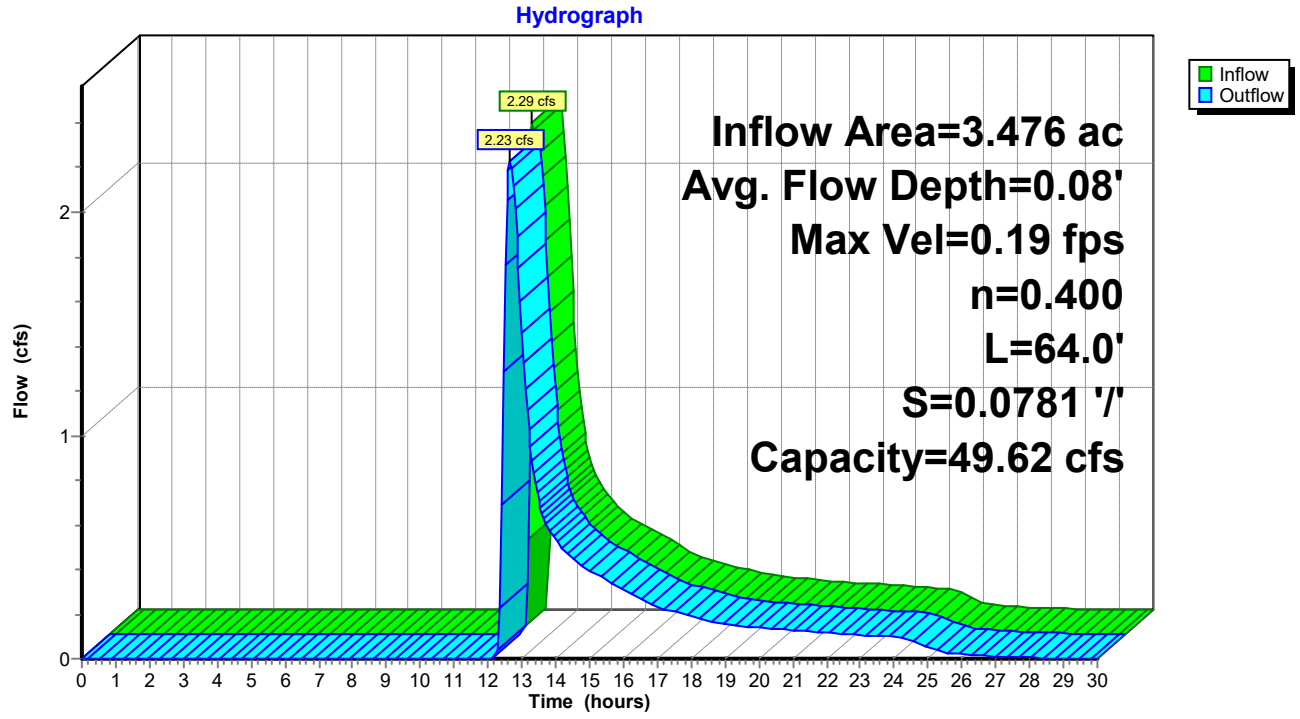
Inflow Area = 3.476 ac, 6.03% Impervious, Inflow Depth > 1.18" for 25-Year event
Inflow = 2.29 cfs @ 12.47 hrs, Volume= 0.343 af
Outflow = 2.23 cfs @ 12.65 hrs, Volume= 0.343 af, Atten= 3%, Lag= 10.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.19 fps, Min. Travel Time= 5.6 min
Avg. Velocity = 0.06 fps, Avg. Travel Time= 16.4 min

Peak Storage= 755 cf @ 12.56 hrs
Average Depth at Peak Storage= 0.08'
Bank-Full Depth= 0.50' Flow Area= 77.5 sf, Capacity= 49.62 cfs

150.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 160.00'
Length= 64.0' Slope= 0.0781 '/'
Inlet Invert= 881.00', Outlet Invert= 876.00'

Reach OL124: WOODS-4



Summary for Reach OL125: WOODS-4

[62] Hint: Exceeded Reach OL122 OUTLET depth by 0.03' @ 18.75 hrs
[62] Hint: Exceeded Reach OL126 OUTLET depth by 0.04' @ 18.75 hrs

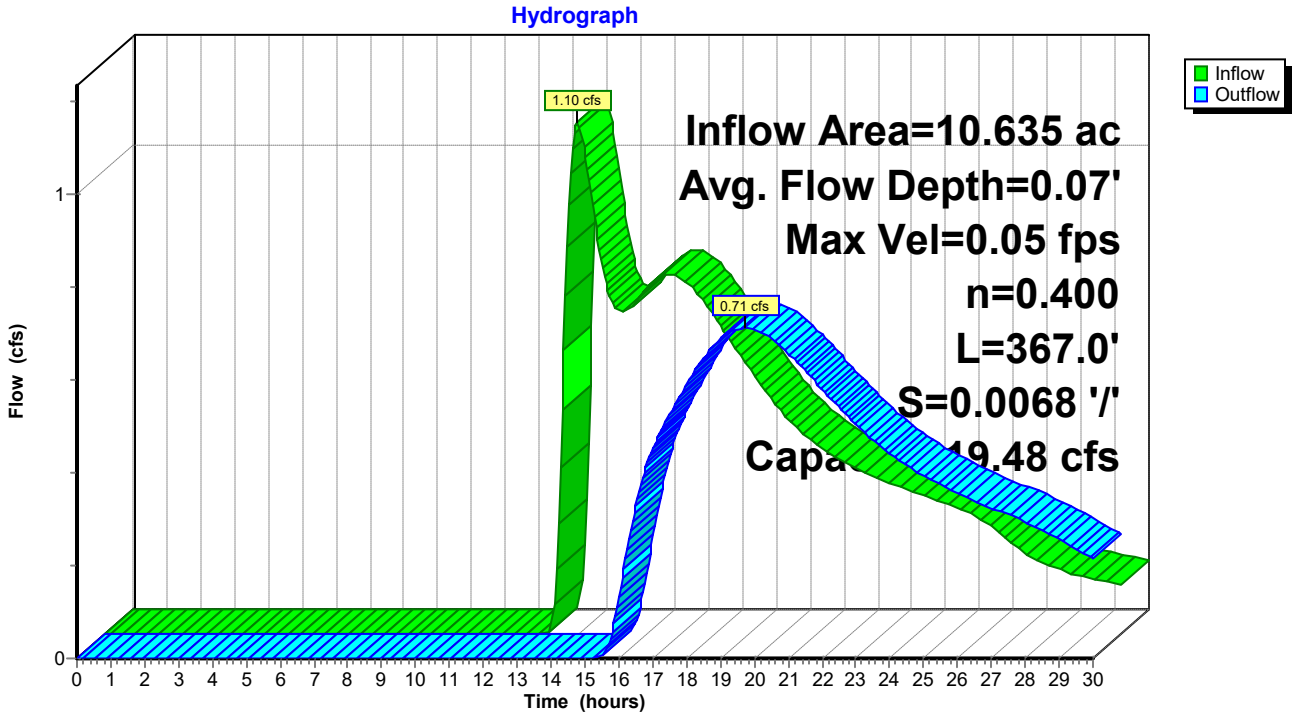
Inflow Area = 10.635 ac, 1.97% Impervious, Inflow Depth > 0.69" for 25-Year event
Inflow = 1.10 cfs @ 13.96 hrs, Volume= 0.613 af
Outflow = 0.71 cfs @ 19.71 hrs, Volume= 0.537 af, Atten= 35%, Lag= 345.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.05 fps, Min. Travel Time= 118.9 min
Avg. Velocity = 0.04 fps, Avg. Travel Time= 154.8 min

Peak Storage= 5,078 cf @ 17.73 hrs
Average Depth at Peak Storage= 0.07'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 19.48 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 367.0' Slope= 0.0068 '/'
Inlet Invert= 874.50', Outlet Invert= 872.00'

Reach OL125: WOODS-4



Summary for Reach OL126: WOODS-4

[62] Hint: Exceeded Reach OL124 OUTLET depth by 0.04' @ 13.40 hrs

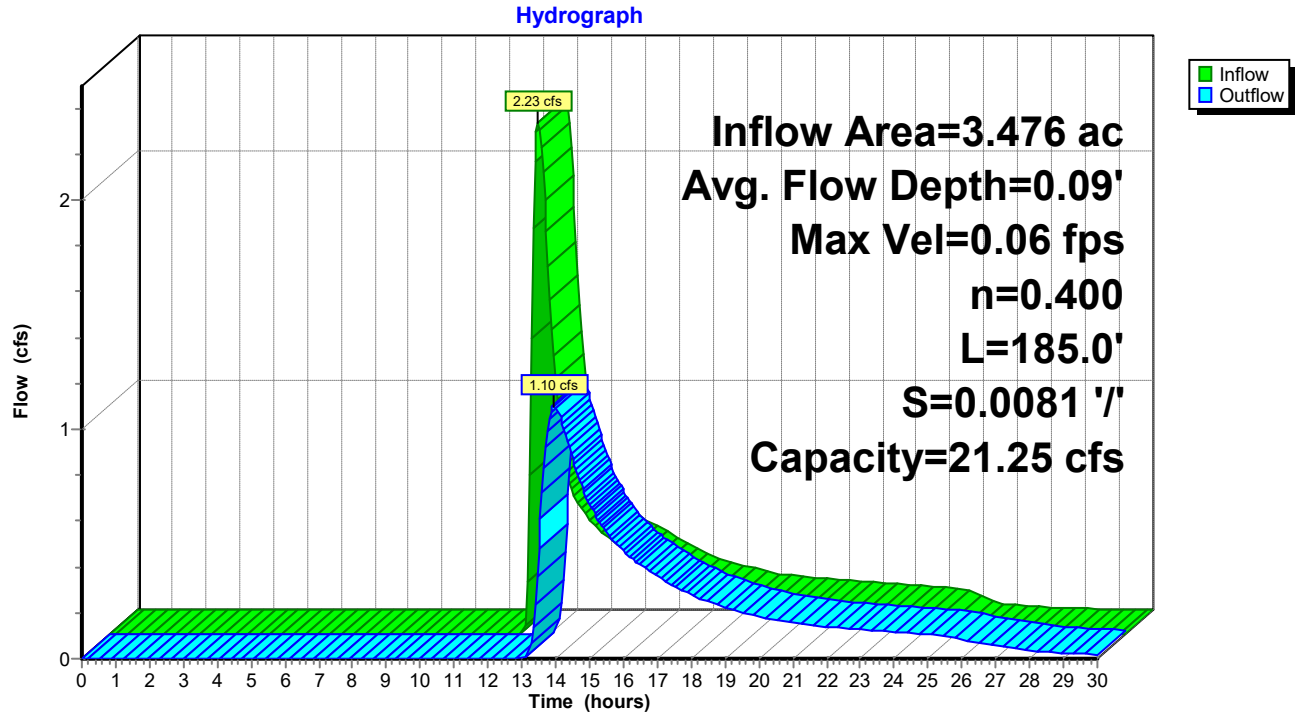
Inflow Area = 3.476 ac, 6.03% Impervious, Inflow Depth > 1.18" for 25-Year event
Inflow = 2.23 cfs @ 12.65 hrs, Volume= 0.343 af
Outflow = 1.10 cfs @ 13.96 hrs, Volume= 0.337 af, Atten= 51%, Lag= 78.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.06 fps, Min. Travel Time= 47.8 min
Avg. Velocity = 0.03 fps, Avg. Travel Time= 101.2 min

Peak Storage= 3,161 cf @ 13.16 hrs
Average Depth at Peak Storage= 0.09'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 21.25 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 185.0' Slope= 0.0081 '/'
Inlet Invert= 876.00', Outlet Invert= 874.50'

Reach OL126: WOODS-4



Summary for Reach OL141: WOODS

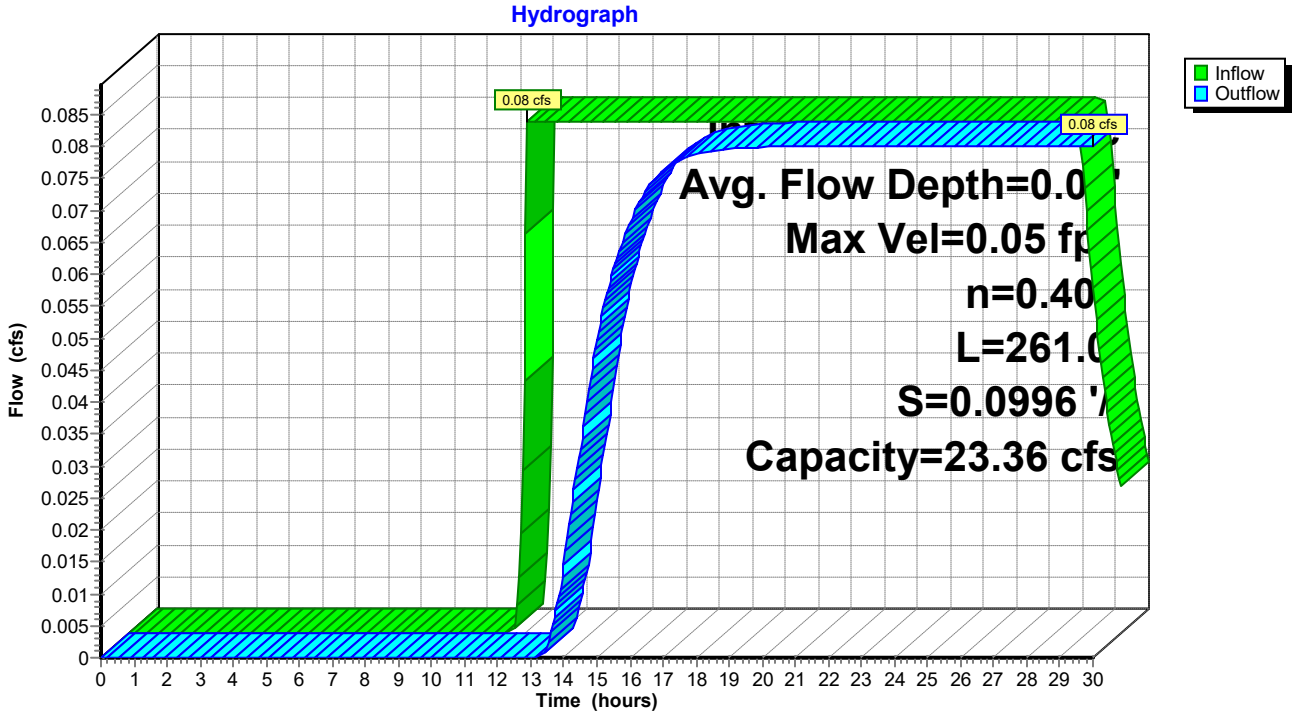
Inflow Area = 1.193 ac, 0.00% Impervious, Inflow Depth > 1.17" for 25-Year event
Inflow = 0.08 cfs @ 12.05 hrs, Volume= 0.116 af
Outflow = 0.08 cfs @ 30.00 hrs, Volume= 0.100 af, Atten= 0%, Lag= 1,077.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.05 fps, Min. Travel Time= 89.9 min
Avg. Velocity = 0.05 fps, Avg. Travel Time= 95.2 min

Peak Storage= 431 cf @ 28.75 hrs
Average Depth at Peak Storage= 0.01'
Bank-Full Depth= 0.25' Flow Area= 50.6 sf, Capacity= 23.36 cfs

200.00' x 0.25' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 205.00'
Length= 261.0' Slope= 0.0996 '/'
Inlet Invert= 888.00', Outlet Invert= 862.00'

Reach OL141: WOODS



Summary for Reach OL142: WOODS

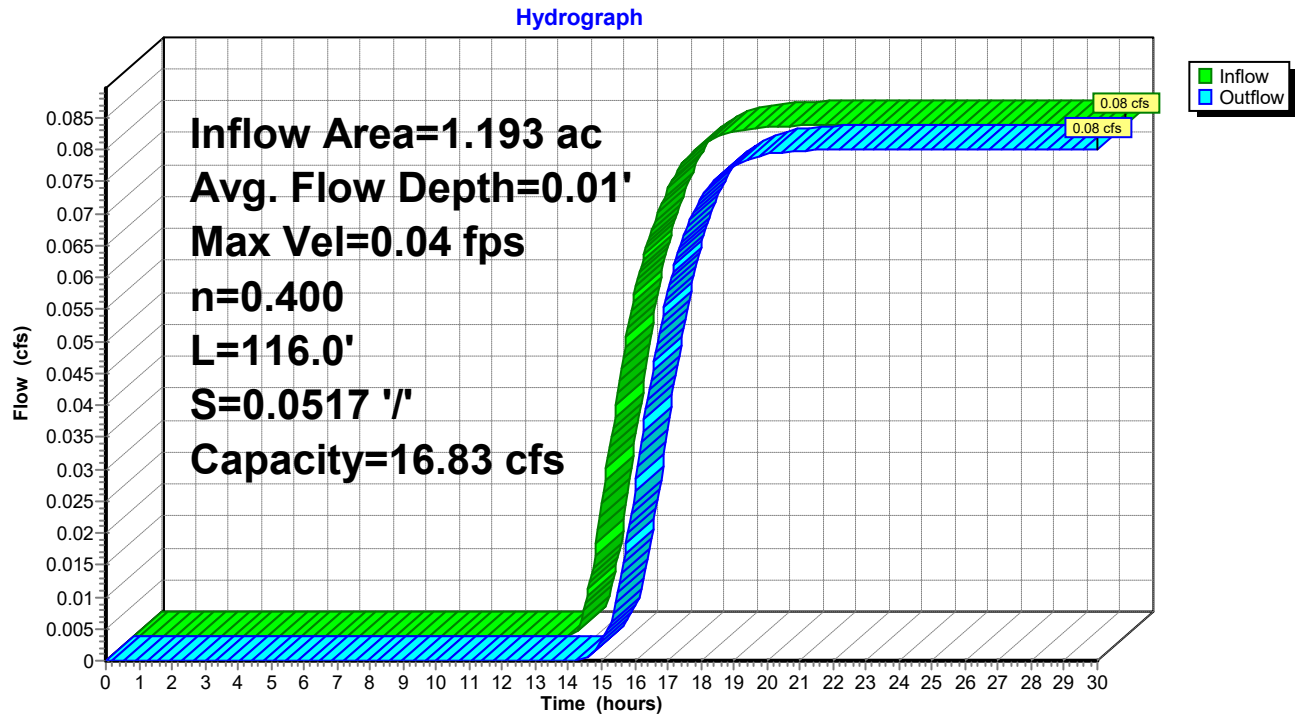
[61] Hint: Exceeded Reach OL141 outlet invert by 0.01' @ 30.00 hrs

Inflow Area = 1.193 ac, 0.00% Impervious, Inflow Depth > 1.00" for 25-Year event
Inflow = 0.08 cfs @ 30.00 hrs, Volume= 0.100 af
Outflow = 0.08 cfs @ 30.00 hrs, Volume= 0.089 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.04 fps, Min. Travel Time= 48.9 min
Avg. Velocity = 0.04 fps, Avg. Travel Time= 53.4 min

Peak Storage= 235 cf @ 30.00 hrs
Average Depth at Peak Storage= 0.01'
Bank-Full Depth= 0.25' Flow Area= 50.6 sf, Capacity= 16.83 cfs

200.00' x 0.25' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 205.00'
Length= 116.0' Slope= 0.0517 '/'
Inlet Invert= 862.00', Outlet Invert= 856.00'



Summary for Reach SW1A: (new Reach)

Inflow Area = 2.547 ac, 0.00% Impervious, Inflow Depth = 0.66" for 25-Year event
Inflow = 0.92 cfs @ 12.26 hrs, Volume= 0.140 af
Outflow = 0.90 cfs @ 12.38 hrs, Volume= 0.140 af, Atten= 3%, Lag= 7.3 min

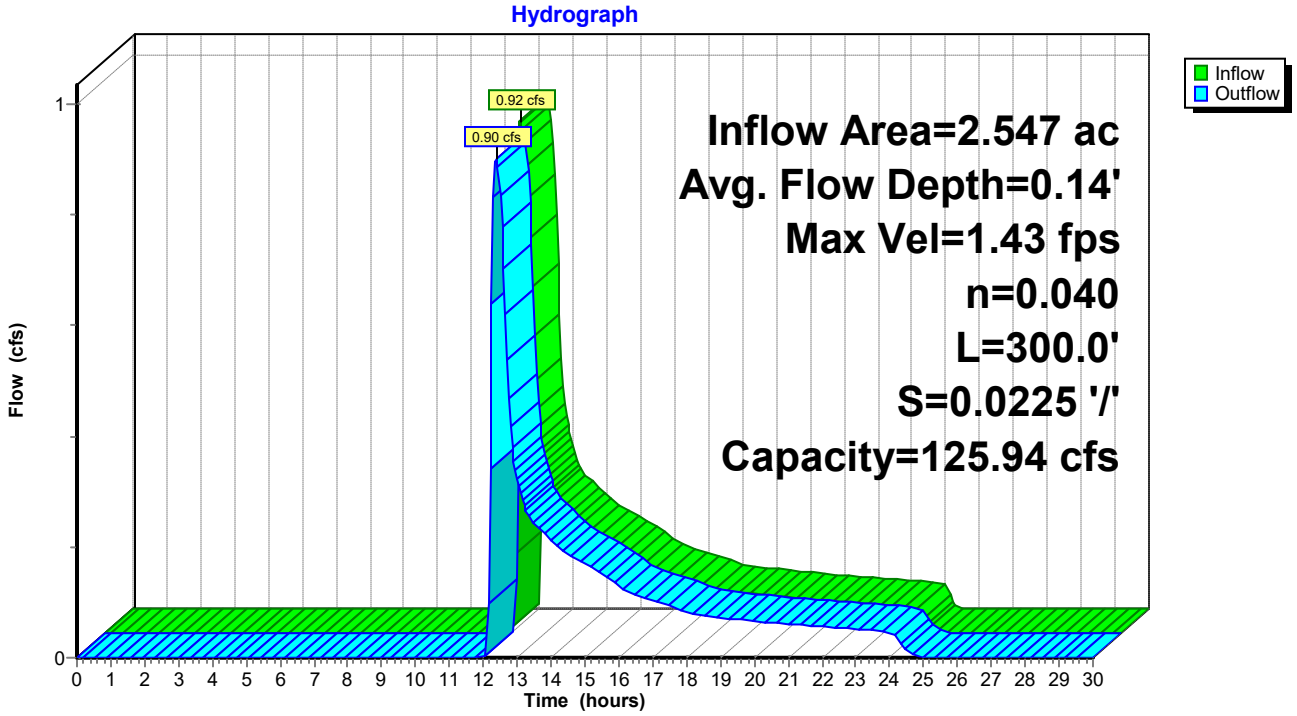
Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.43 fps, Min. Travel Time= 3.5 min
Avg. Velocity = 0.64 fps, Avg. Travel Time= 7.9 min

Peak Storage= 190 cf @ 12.32 hrs
Average Depth at Peak Storage= 0.14'
Bank-Full Depth= 2.00' Flow Area= 20.0 sf, Capacity= 125.94 cfs

4.00' x 2.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 3.0 '/' Top Width= 16.00'
Length= 300.0' Slope= 0.0225 '/'
Inlet Invert= 913.85', Outlet Invert= 907.10'

‡

Reach SW1A: (new Reach)



Summary for Reach SW1B: (new Reach)

[61] Hint: Exceeded Reach SW1A outlet invert by 0.10' @ 12.40 hrs

Inflow Area = 2.547 ac, 0.00% Impervious, Inflow Depth = 0.66" for 25-Year event
Inflow = 0.90 cfs @ 12.38 hrs, Volume= 0.140 af
Outflow = 0.89 cfs @ 12.45 hrs, Volume= 0.140 af, Atten= 1%, Lag= 4.2 min

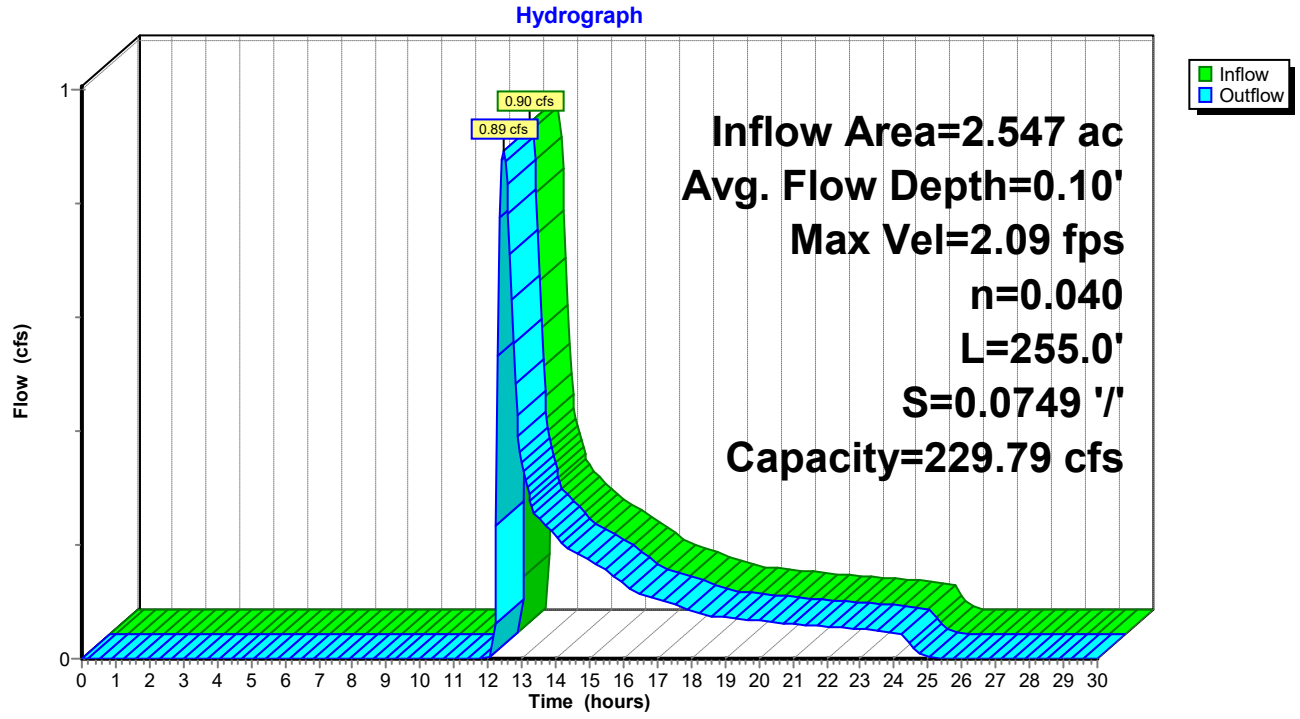
Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.09 fps, Min. Travel Time= 2.0 min
Avg. Velocity = 0.95 fps, Avg. Travel Time= 4.5 min

Peak Storage= 110 cf @ 12.41 hrs
Average Depth at Peak Storage= 0.10'
Bank-Full Depth= 2.00' Flow Area= 20.0 sf, Capacity= 229.79 cfs

4.00' x 2.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 3.0 '/' Top Width= 16.00'
Length= 255.0' Slope= 0.0749 '/'
Inlet Invert= 907.10', Outlet Invert= 888.00'

‡

Reach SW1B: (new Reach)



Summary for Reach SW2A: (new Reach)

Inflow Area = 11.353 ac, 1.93% Impervious, Inflow Depth = 0.33" for 25-Year event
Inflow = 1.00 cfs @ 12.64 hrs, Volume= 0.314 af
Outflow = 1.00 cfs @ 12.68 hrs, Volume= 0.314 af, Atten= 1%, Lag= 2.6 min

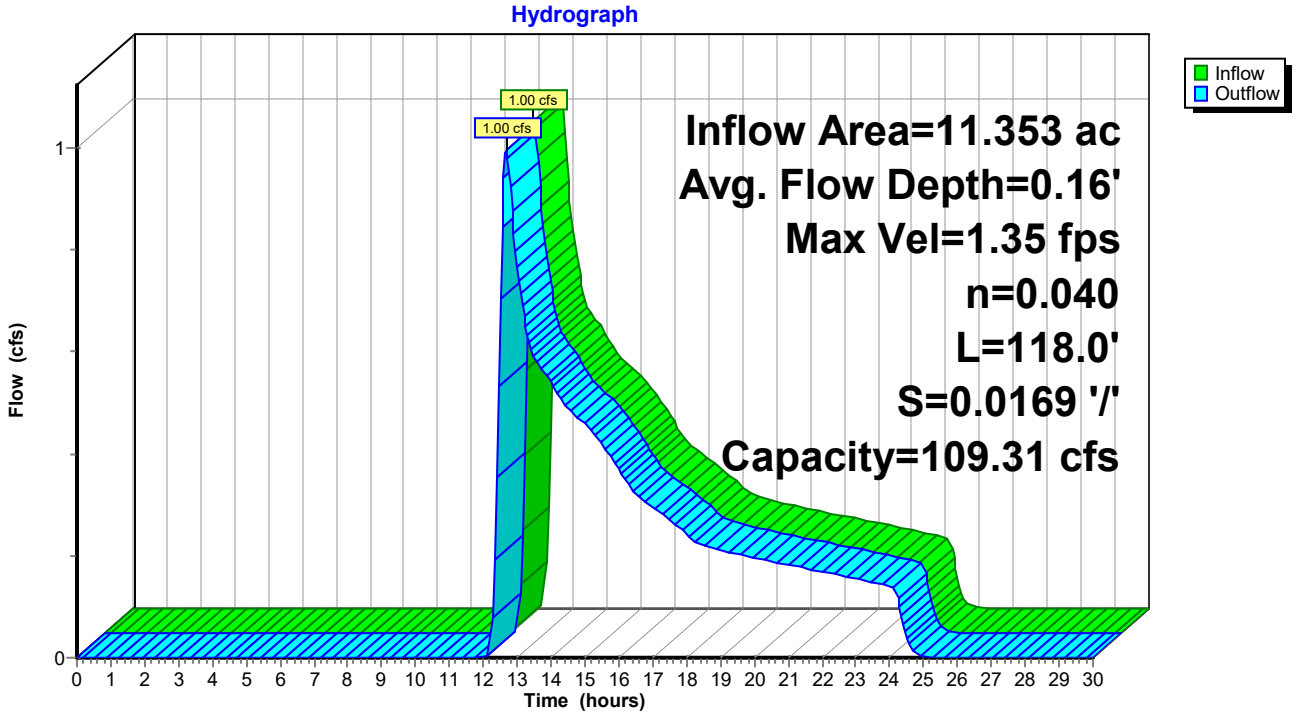
Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.35 fps, Min. Travel Time= 1.5 min
Avg. Velocity = 0.81 fps, Avg. Travel Time= 2.4 min

Peak Storage= 88 cf @ 12.66 hrs
Average Depth at Peak Storage= 0.16'
Bank-Full Depth= 2.00' Flow Area= 20.0 sf, Capacity= 109.31 cfs

4.00' x 2.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 3.0 '/' Top Width= 16.00'
Length= 118.0' Slope= 0.0169 '/'
Inlet Invert= 890.00', Outlet Invert= 888.00'

‡

Reach SW2A: (new Reach)



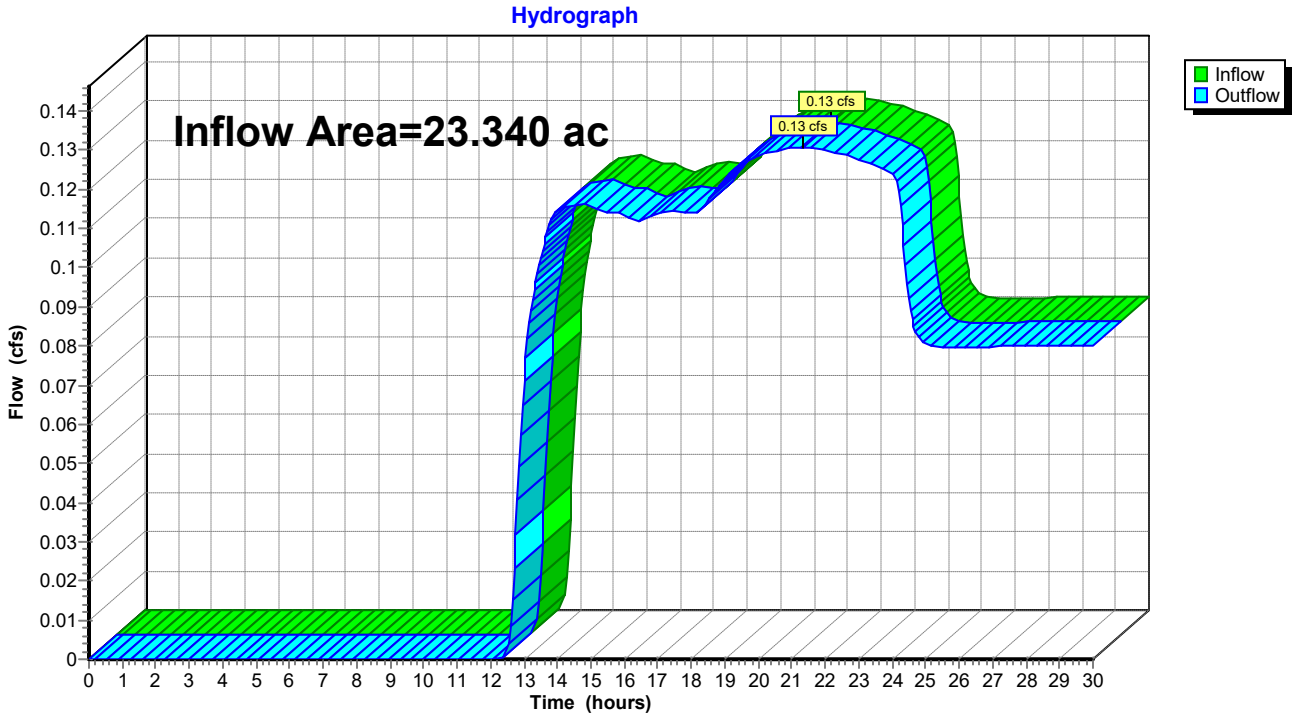
Summary for Reach WETLAND: WETLAND

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 23.340 ac, 0.97% Impervious, Inflow Depth > 0.08" for 25-Year event
Inflow = 0.13 cfs @ 21.33 hrs, Volume= 0.151 af
Outflow = 0.13 cfs @ 21.33 hrs, Volume= 0.151 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach WETLAND: WETLAND



Summary for Pond DB1: TO DP#1

[44] Hint: Outlet device #3 is below defined storage

Inflow Area = 2.133 ac, 0.00% Impervious, Inflow Depth = 1.12" for 25-Year event
Inflow = 2.14 cfs @ 12.13 hrs, Volume= 0.199 af
Outflow = 0.04 cfs @ 12.00 hrs, Volume= 0.060 af, Atten= 98%, Lag= 0.0 min
Primary = 0.04 cfs @ 12.00 hrs, Volume= 0.060 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 818.53' @ 24.06 hrs Surf.Area= 5,458 sf Storage= 6,923 cf

Plug-Flow detention time= 527.6 min calculated for 0.060 af (30% of inflow)
Center-of-Mass det. time= 368.4 min (1,257.7 - 889.3)

Volume	Invert	Avail.Storage	Storage Description
#1	817.00'	15,897 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

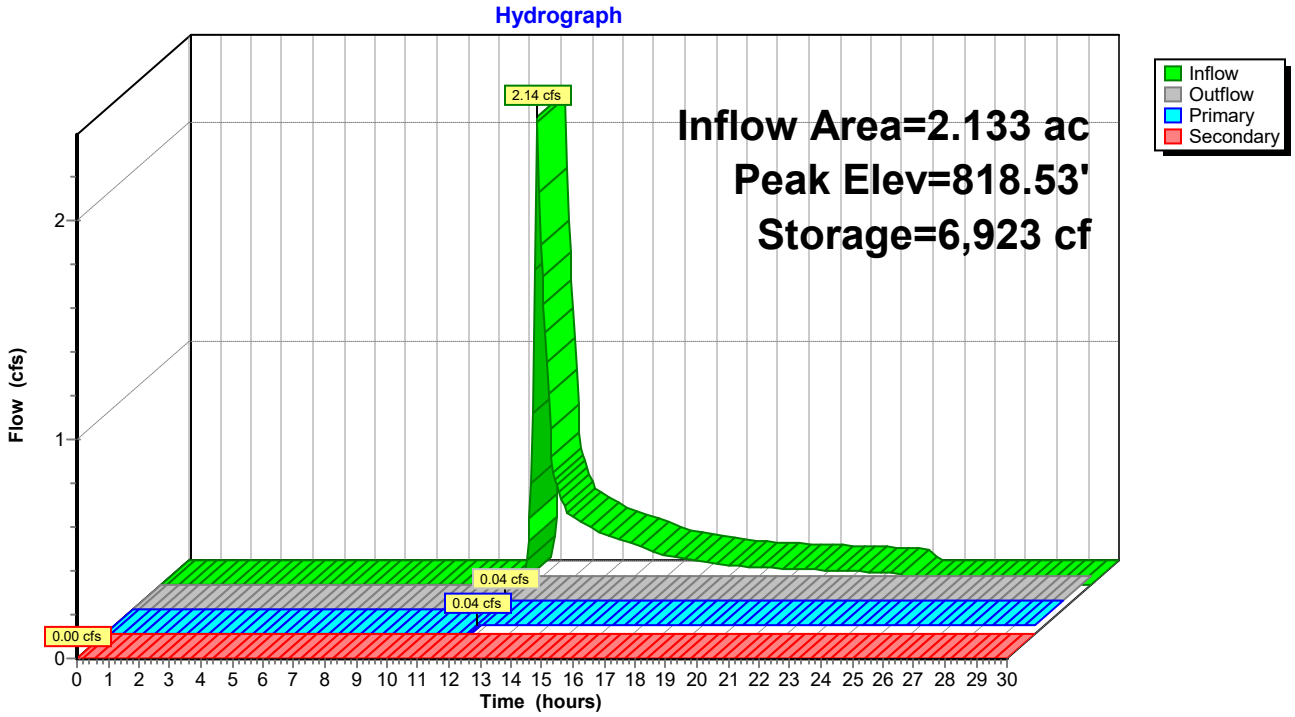
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
817.00	3,316	0	0
818.00	4,993	4,155	4,155
820.00	6,749	11,742	15,897

Device	Routing	Invert	Outlet Devices
#1	Secondary	819.50'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	815.40'	**6.0" Round Culvert** L= 42.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 815.40' / 815.00' S= 0.0095 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	815.40'	**Special & User-Defined** Head (feet) 0.00 1.00 2.00 3.00 4.00 6.00 8.00 Disch. (cfs) 0.000 0.040 0.040 0.040 0.040 0.040 0.040

Primary OutFlow Max=0.04 cfs @ 12.00 hrs HW=817.08' (Free Discharge)
└**2=Culvert** (Passes 0.04 cfs of 0.89 cfs potential flow)
└**3=Special & User-Defined** (Custom Controls 0.04 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=817.00' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond DB1: TO DP#1



Summary for Pond DB11: TO WETLAND

[44] Hint: Outlet device #3 is below defined storage
[79] Warning: Submerged Pond SB1 Primary device # 1 OUTLET by 0.34'

Inflow Area = 17.764 ac, 1.27% Impervious, Inflow Depth > 0.35" for 25-Year event
Inflow = 1.17 cfs @ 13.04 hrs, Volume= 0.525 af
Outflow = 0.08 cfs @ 12.75 hrs, Volume= 0.116 af, Atten= 93%, Lag= 0.0 min
Primary = 0.08 cfs @ 12.75 hrs, Volume= 0.116 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 883.34' @ 24.72 hrs Surf.Area= 15,473 sf Storage= 19,137 cf

Plug-Flow detention time= 499.7 min calculated for 0.116 af (22% of inflow)
Center-of-Mass det. time= 274.7 min (1,275.8 - 1,001.1)

Volume	Invert	Avail.Storage	Storage Description
#1	882.00'	67,293 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

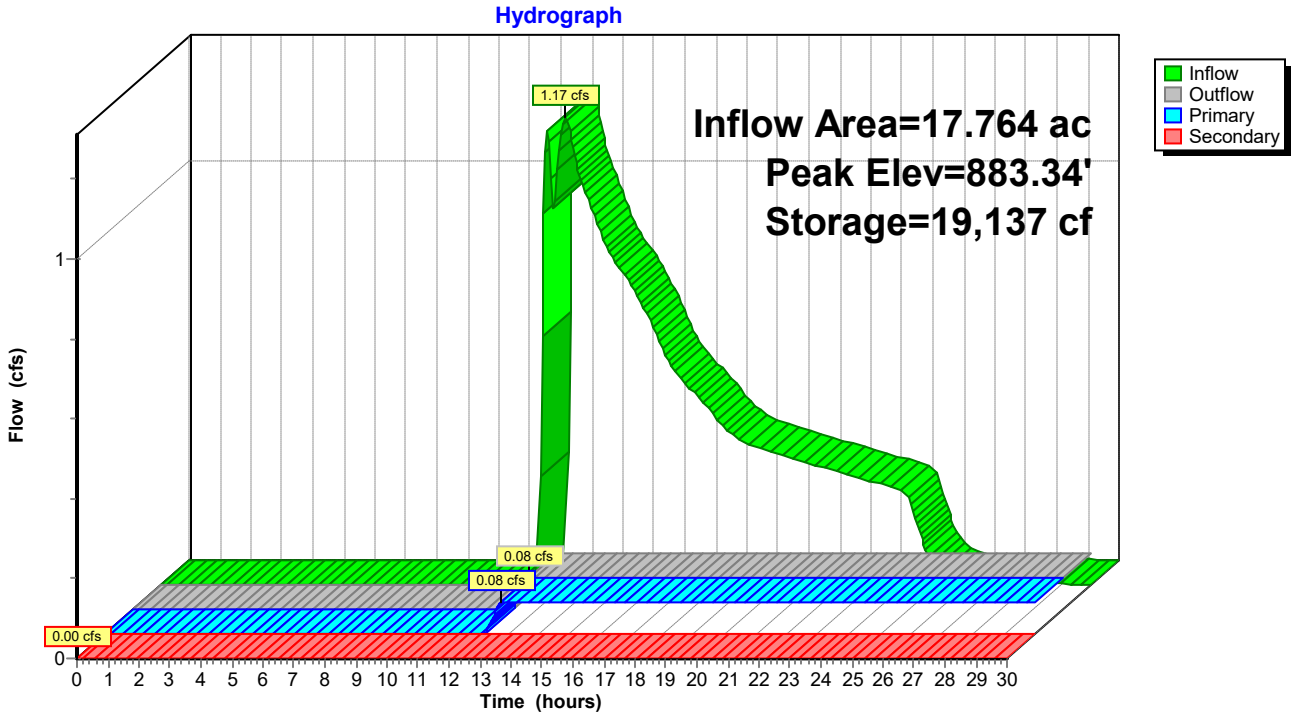
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
882.00	13,097	0	0
884.00	16,644	29,741	29,741
886.00	20,908	37,552	67,293

Device	Routing	Invert	Outlet Devices
#1	Secondary	885.00'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	879.37'	**12.0" Round Culvert** L= 36.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 879.37' / 878.00' S= 0.0381 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	879.70'	**Special & User-Defined** Head (feet) 0.00 1.00 15.00 Disch. (cfs) 0.000 0.080 0.080
#4	Device 2	883.80'	**3.0" Vert. Orifice/Grate** C= 0.600
#5	Device 2	884.50'	**2.1' long Sharp-Crested Rectangular Weir X 3.00** 2 End Contraction(s) 0.5' Crest Height

Primary OutFlow Max=0.08 cfs @ 12.75 hrs HW=882.13' (Free Discharge)
└**2=Culvert** (Passes 0.08 cfs of 4.49 cfs potential flow)
  ├**3=Special & User-Defined** (Custom Controls 0.08 cfs)
  ├**4=Orifice/Grate** (Controls 0.00 cfs)
  └**5=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=882.00' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond DB11: TO WETLAND



Summary for Pond DB12: TO DP12

[44] Hint: Outlet device #3 is below defined storage

Inflow Area = 7.158 ac, 0.00% Impervious, Inflow Depth = 0.59" for 25-Year event
Inflow = 2.16 cfs @ 12.28 hrs, Volume= 0.355 af
Outflow = 0.58 cfs @ 13.70 hrs, Volume= 0.313 af, Atten= 73%, Lag= 85.7 min
Primary = 0.58 cfs @ 13.70 hrs, Volume= 0.313 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 885.05' @ 13.70 hrs Surf.Area= 4,991 sf Storage= 4,502 cf

Plug-Flow detention time= 211.2 min calculated for 0.313 af (88% of inflow)
Center-of-Mass det. time= 158.5 min (1,091.9 - 933.4)

Volume	Invert	Avail.Storage	Storage Description
#1	884.00'	17,157 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

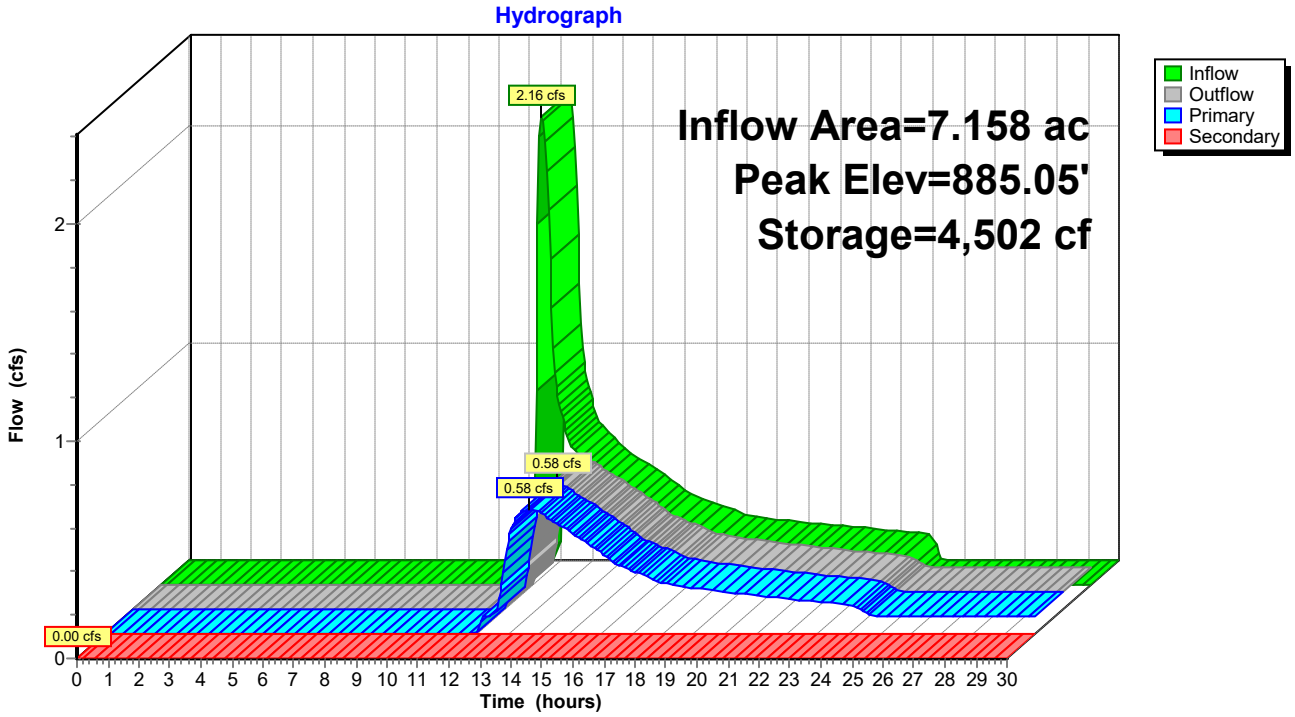
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
884.00	3,625	0	0
886.00	6,239	9,864	9,864
887.00	8,347	7,293	17,157

Device	Routing	Invert	Outlet Devices
#1	Secondary	886.00'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	882.10'	**12.0" Round Culvert** L= 28.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 882.10' / 881.50' S= 0.0214 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	882.30'	**Special & User-Defined** Head (feet) 0.00 1.00 15.00 Disch. (cfs) 0.000 0.080 0.080
#4	Device 2	884.80'	**6.0" Vert. Orifice/Grate X 3.00** C= 0.600
#5	Device 2	885.75'	**2.1' long Sharp-Crested Rectangular Weir X 3.00** 2 End Contraction(s) 0.5' Crest Height

Primary OutFlow Max=0.56 cfs @ 13.70 hrs HW=885.05' (Free Discharge)
└**2=Culvert** (Passes 0.56 cfs of 4.67 cfs potential flow)
  ├**3=Special & User-Defined** (Custom Controls 0.08 cfs)
  ├**4=Orifice/Grate** (Orifice Controls 0.48 cfs @ 1.69 fps)
  └**5=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=884.00' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond DB12: TO DP12



Summary for Pond DB13: TO DP#12

[62] Hint: Exceeded Reach DMH2 OUTLET depth by 0.79' @ 12.50 hrs

Inflow Area = 3.476 ac, 6.03% Impervious, Inflow Depth = 1.28" for 25-Year event
Inflow = 4.03 cfs @ 12.15 hrs, Volume= 0.371 af
Outflow = 2.31 cfs @ 12.38 hrs, Volume= 0.343 af, Atten= 43%, Lag= 13.6 min
Primary = 2.31 cfs @ 12.38 hrs, Volume= 0.343 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 893.10' @ 12.38 hrs Surf.Area= 3,899 sf Storage= 3,226 cf

Plug-Flow detention time= 75.2 min calculated for 0.343 af (92% of inflow)
Center-of-Mass det. time= 37.7 min (914.9 - 877.2)

Volume	Invert	Avail.Storage	Storage Description
#1	892.00'	14,332 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

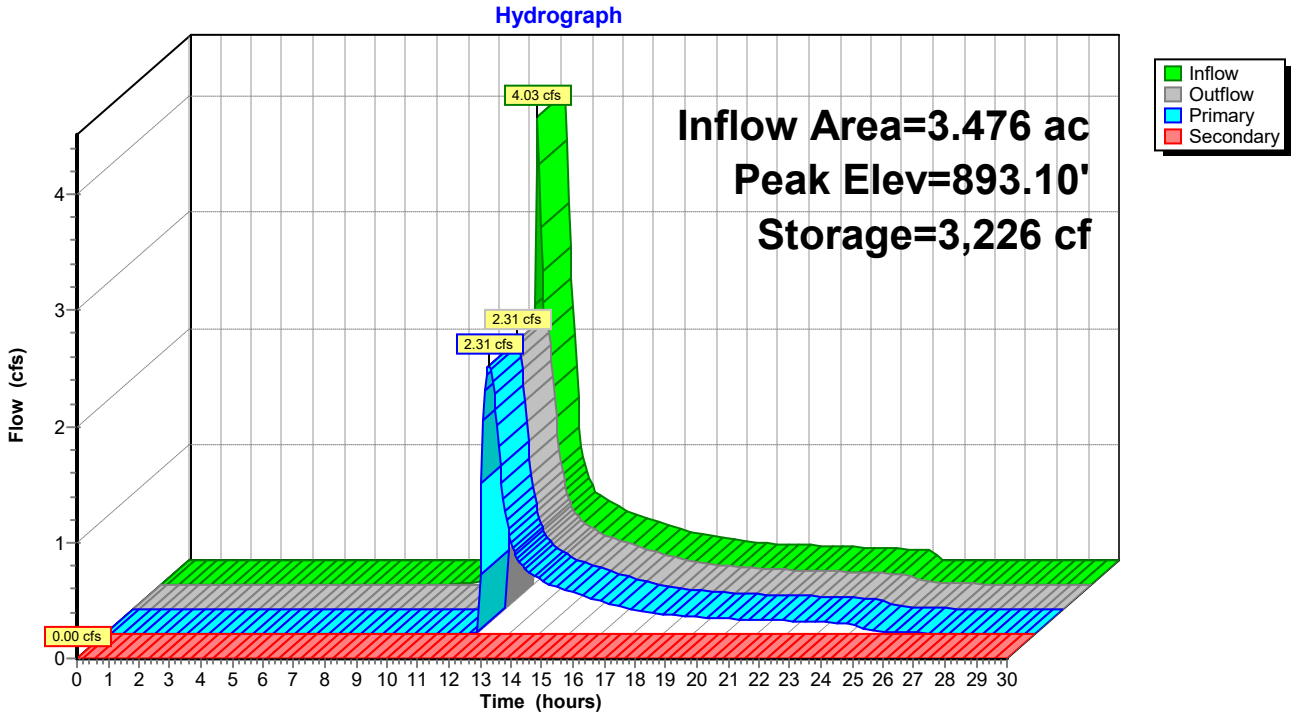
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
892.00	1,954	0	0
894.00	5,483	7,437	7,437
895.00	8,307	6,895	14,332

Device	Routing	Invert	Outlet Devices
#1	Secondary	894.00'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	890.00'	**12.0" Round Culvert** L= 38.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 890.00' / 888.00' S= 0.0526 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	893.50'	**2.6' long Sharp-Crested Rectangular Weir X 3.00** 2 End Contraction(s) 0.5' Crest Height
#4	Device 2	892.50'	**6.0" Vert. Orifice/Grate X 4.00** C= 0.600
#5	Device 2	893.00'	**3.0" Vert. Orifice/Grate X 3.00** C= 0.600

Primary OutFlow Max=2.30 cfs @ 12.38 hrs HW=893.10' (Free Discharge)
└**2=Culvert** (Passes 2.30 cfs of 4.81 cfs potential flow)
  ├**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
  ├**4=Orifice/Grate** (Orifice Controls 2.24 cfs @ 2.85 fps)
  └**5=Orifice/Grate** (Orifice Controls 0.06 cfs @ 1.08 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=892.00' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond DB13: TO DP#12



Summary for Pond DB14: TO DP#14

[44] Hint: Outlet device #3 is below defined storage

Inflow Area = 1.193 ac, 0.00% Impervious, Inflow Depth = 1.19" for 25-Year event
Inflow = 1.41 cfs @ 12.10 hrs, Volume= 0.118 af
Outflow = 0.08 cfs @ 12.05 hrs, Volume= 0.116 af, Atten= 94%, Lag= 0.0 min
Primary = 0.08 cfs @ 12.05 hrs, Volume= 0.116 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 903.03' @ 16.12 hrs Surf.Area= 2,979 sf Storage= 2,598 cf

Plug-Flow detention time= 366.7 min calculated for 0.116 af (98% of inflow)
Center-of-Mass det. time= 358.2 min (1,242.4 - 884.2)

Volume	Invert	Avail.Storage	Storage Description
#1	902.00'	15,766 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

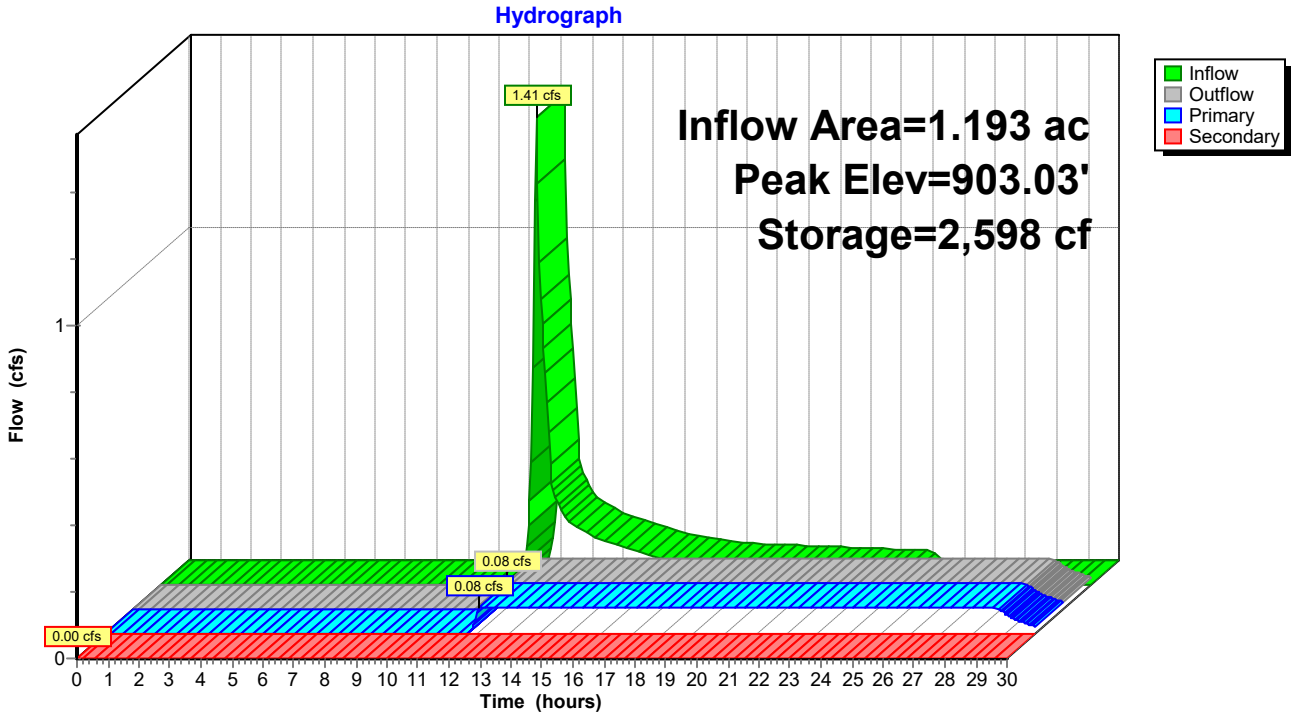
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
902.00	2,080	0	0
904.00	3,830	5,910	5,910
906.00	6,026	9,856	15,766

Device	Routing	Invert	Outlet Devices
#1	Secondary	905.00'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	900.30'	**4.0" Round Culvert** L= 50.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 900.30' / 898.00' S= 0.0460 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.09 sf
#3	Device 2	900.40'	**Special & User-Defined** Head (feet) 0.00 1.00 15.00 Disch. (cfs) 0.000 0.080 0.080

Primary OutFlow Max=0.08 cfs @ 12.05 hrs HW=902.17' (Free Discharge)
2=Culvert (Passes 0.08 cfs of 0.43 cfs potential flow)
3=Special & User-Defined (Custom Controls 0.08 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=902.00' (Free Discharge)
1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond DB14: TO DP#14



Summary for Pond DB2: TO DP#1

[44] Hint: Outlet device #4 is below defined storage

Inflow Area = 5.809 ac, 0.00% Impervious, Inflow Depth = 1.27" for 25-Year event
Inflow = 6.55 cfs @ 12.16 hrs, Volume= 0.616 af
Outflow = 2.95 cfs @ 12.51 hrs, Volume= 0.483 af, Atten= 55%, Lag= 21.0 min
Primary = 2.95 cfs @ 12.51 hrs, Volume= 0.483 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 808.73' @ 12.51 hrs Surf.Area= 6,090 sf Storage= 7,931 cf

Plug-Flow detention time= 175.0 min calculated for 0.482 af (78% of inflow)
Center-of-Mass det. time= 88.3 min (972.0 - 883.8)

Volume	Invert	Avail.Storage	Storage Description
#1	807.00'	17,094 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

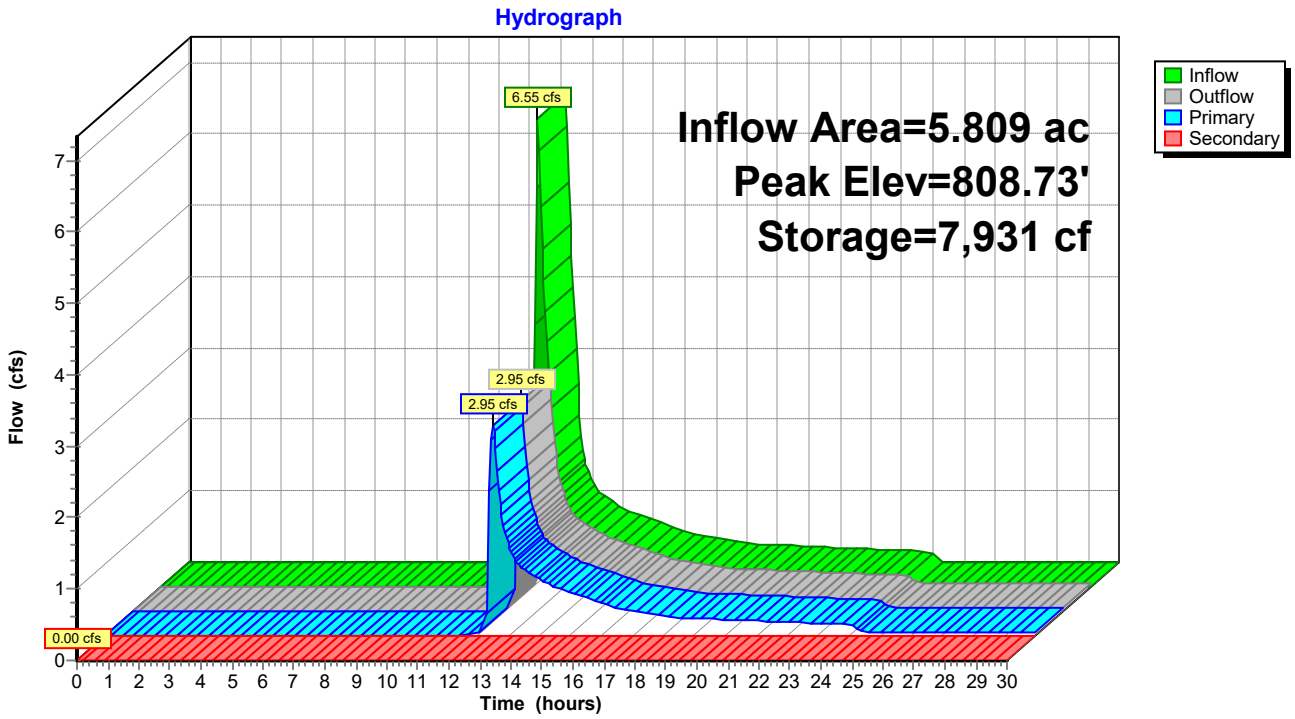
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
807.00	3,109	0	0
808.00	4,812	3,961	3,961
810.00	8,321	13,133	17,094

Device	Routing	Invert	Outlet Devices
#1	Secondary	809.00'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	806.30'	**12.0" Round Culvert** L= 29.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 806.30' / 806.00' S= 0.0103 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf
#3	Device 2	808.50'	**2.6' long Sharp-Crested Rectangular Weir X 3.00** 2 End Contraction(s) 0.5' Crest Height
#4	Device 2	806.00'	**Special & User-Defined** Head (feet) 0.00 1.00 2.00 3.00 4.00 6.00 8.00 Disch. (cfs) 0.000 0.040 0.040 0.040 0.040 0.040 0.040

Primary OutFlow Max=2.90 cfs @ 12.51 hrs HW=808.73' (Free Discharge)
└**2=Culvert** (Passes 2.90 cfs of 5.89 cfs potential flow)
  ├**3=Sharp-Crested Rectangular Weir** (Weir Controls 2.86 cfs @ 1.65 fps)
  └**4=Special & User-Defined** (Custom Controls 0.04 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=807.00' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond DB2: TO DP#1



Summary for Pond DB3: TO DP#2

[44] Hint: Outlet device #3 is below defined storage

Inflow Area = 1.471 ac, 0.00% Impervious, Inflow Depth = 0.47" for 25-Year event
Inflow = 0.31 cfs @ 12.31 hrs, Volume= 0.057 af
Outflow = 0.29 cfs @ 12.40 hrs, Volume= 0.057 af, Atten= 5%, Lag= 5.0 min
Primary = 0.29 cfs @ 12.40 hrs, Volume= 0.057 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 856.02' @ 12.40 hrs Surf.Area= 3,511 sf Storage= 83 cf

Plug-Flow detention time= 4.8 min calculated for 0.057 af (100% of inflow)
Center-of-Mass det. time= 4.8 min (951.9 - 947.1)

Volume	Invert	Avail.Storage	Storage Description
#1	856.00'	8,610 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

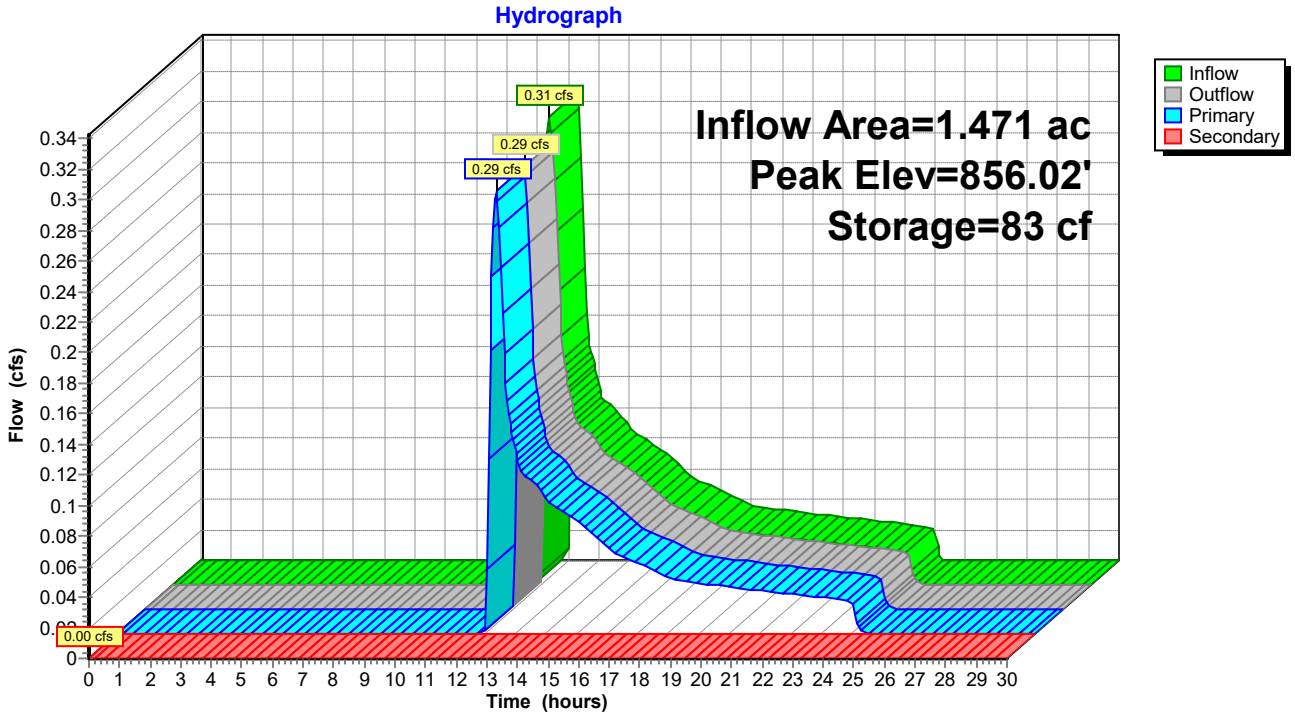
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
856.00	3,492	0	0
858.00	5,118	8,610	8,610

Device	Routing	Invert	Outlet Devices
#1	Secondary	857.00'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	854.50'	**6.0" Round Culvert** L= 46.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 854.50' / 854.00' S= 0.0109 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	854.50'	**Special & User-Defined** Head (feet) 0.00 1.00 2.00 3.00 4.00 6.00 Disch. (cfs) 0.000 0.550 0.550 0.550 0.550 0.550

Primary OutFlow Max=0.55 cfs @ 12.40 hrs HW=856.02' (Free Discharge)
↑**2=Culvert** (Passes 0.55 cfs of 0.84 cfs potential flow)
↑**3=Special & User-Defined** (Custom Controls 0.55 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=856.00' (Free Discharge)
↑**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond DB3: TO DP#2



Summary for Pond DB4: TO DP#2

[44] Hint: Outlet device #3 is below defined storage

Inflow Area = 1.454 ac, 3.28% Impervious, Inflow Depth = 0.35" for 25-Year event
Inflow = 0.18 cfs @ 12.36 hrs, Volume= 0.042 af
Outflow = 0.16 cfs @ 12.46 hrs, Volume= 0.042 af, Atten= 11%, Lag= 6.1 min
Primary = 0.16 cfs @ 12.46 hrs, Volume= 0.042 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 888.01' @ 12.46 hrs Surf.Area= 5,754 sf Storage= 60 cf

Plug-Flow detention time= 6.3 min calculated for 0.042 af (100% of inflow)
Center-of-Mass det. time= 6.3 min (975.0 - 968.7)

Volume	Invert	Avail.Storage	Storage Description
#1	888.00'	15,032 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

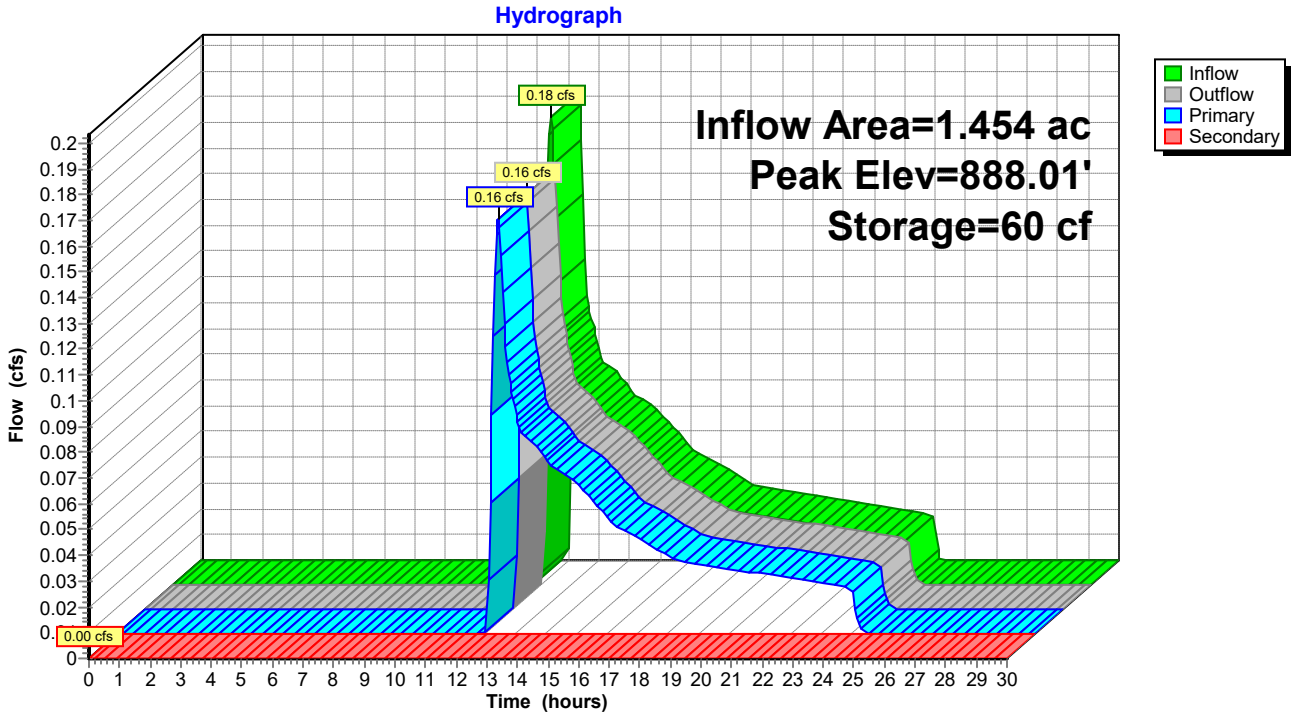
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
888.00	5,735	0	0
890.00	9,297	15,032	15,032

Device	Routing	Invert	Outlet Devices
#1	Secondary	889.00'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	885.60'	**6.0" Round Culvert** L= 34.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 885.60' / 885.00' S= 0.0176 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	885.60'	**Special & User-Defined** Head (feet) 0.00 1.00 2.00 3.00 4.00 6.00 Disch. (cfs) 0.000 0.550 0.550 0.550 0.550 0.550

Primary OutFlow Max=0.55 cfs @ 12.46 hrs HW=888.01' (Free Discharge)
└**2=Culvert** (Passes 0.55 cfs of 1.10 cfs potential flow)
└**3=Special & User-Defined** (Custom Controls 0.55 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=888.00' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond DB4: TO DP#2



Summary for Pond DB5: TO DP#2

[44] Hint: Outlet device #3 is below defined storage

Inflow Area = 1.032 ac, 3.16% Impervious, Inflow Depth = 0.47" for 25-Year event
Inflow = 0.22 cfs @ 12.29 hrs, Volume= 0.041 af
Outflow = 0.22 cfs @ 12.31 hrs, Volume= 0.041 af, Atten= 1%, Lag= 1.5 min
Primary = 0.22 cfs @ 12.31 hrs, Volume= 0.041 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 866.02' @ 12.31 hrs Surf.Area= 1,248 sf Storage= 22 cf

Plug-Flow detention time= 1.7 min calculated for 0.041 af (100% of inflow)
Center-of-Mass det. time= 1.7 min (946.2 - 944.5)

Volume	Invert	Avail.Storage	Storage Description
#1	866.00'	4,204 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

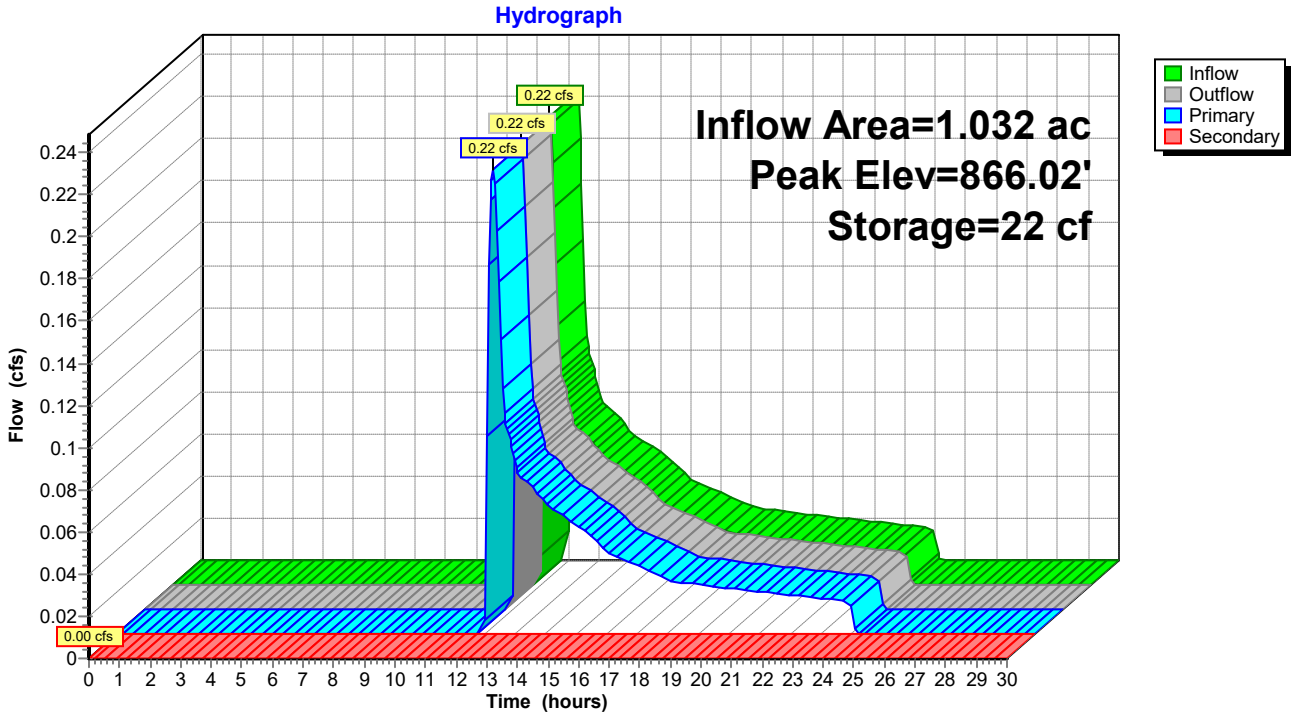
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
866.00	1,232	0	0
868.00	2,972	4,204	4,204

Device	Routing	Invert	Outlet Devices
#1	Secondary	867.00'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	864.50'	**6.0" Round Culvert** L= 26.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 864.50' / 864.00' S= 0.0192 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	864.50'	**Special & User-Defined** Head (feet) 0.00 1.00 2.00 4.00 6.00 Disch. (cfs) 0.000 0.550 0.550 0.550 0.550

Primary OutFlow Max=0.55 cfs @ 12.31 hrs HW=866.02' (Free Discharge)
↑—**2=Culvert** (Passes 0.55 cfs of 0.84 cfs potential flow)
↑—**3=Special & User-Defined** (Custom Controls 0.55 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=866.00' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond DB5: TO DP#2



Summary for Pond SB1: TO DB#11

Inflow Area = 11.353 ac, 1.93% Impervious, Inflow Depth = 0.33" for 25-Year event
Inflow = 1.00 cfs @ 12.68 hrs, Volume= 0.314 af
Outflow = 0.69 cfs @ 13.15 hrs, Volume= 0.298 af, Atten= 31%, Lag= 28.4 min
Primary = 0.69 cfs @ 13.15 hrs, Volume= 0.298 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 885.98' @ 13.15 hrs Surf.Area= 1,759 sf Storage= 1,416 cf

Plug-Flow detention time= 59.5 min calculated for 0.298 af (95% of inflow)
Center-of-Mass det. time= 37.6 min (1,030.2 - 992.6)

Volume	Invert	Avail.Storage	Storage Description
#1	885.00'	6,749 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

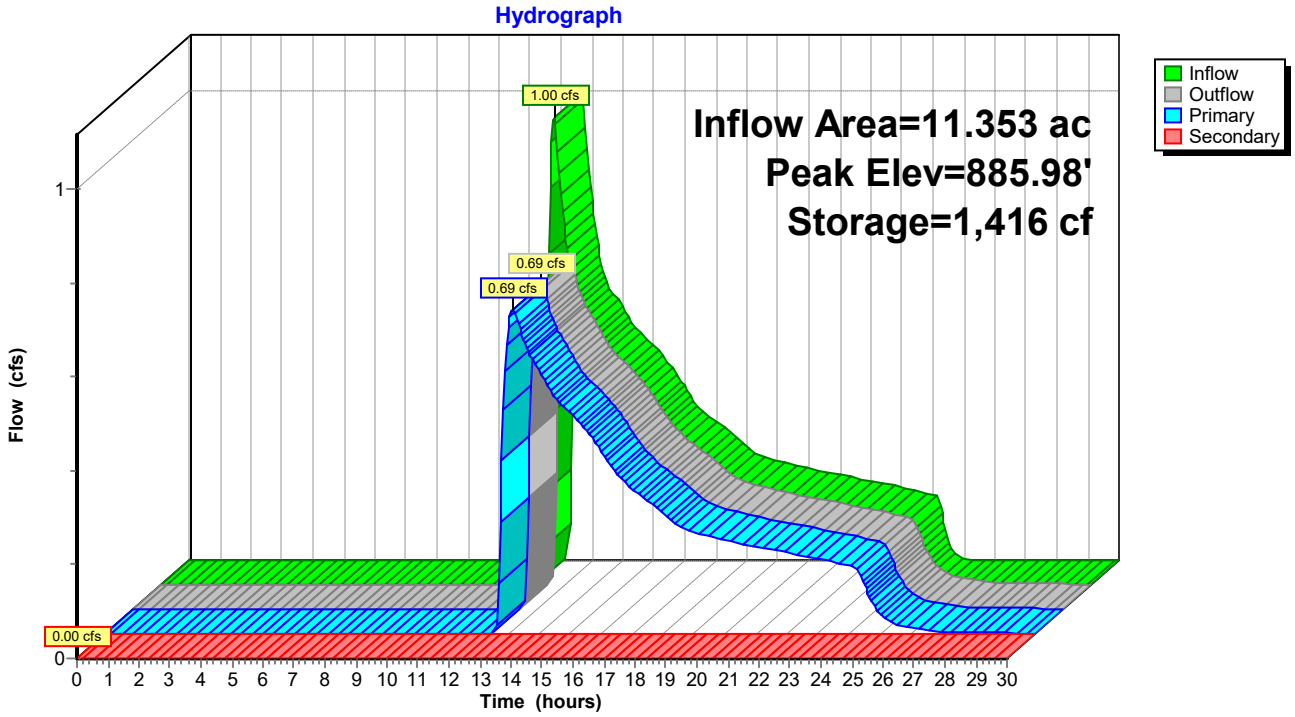
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
885.00	1,134	0	0
886.00	1,773	1,454	1,454
888.00	3,522	5,295	6,749

Device	Routing	Invert	Outlet Devices
#1	Primary	885.50'	**12.0" Round Culvert** L= 51.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 885.50' / 883.00' S= 0.0490 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	887.00'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.69 cfs @ 13.15 hrs HW=885.98' (Free Discharge)
1=Culvert (Inlet Controls 0.69 cfs @ 1.86 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=885.00' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond SB1: TO DB#11



Summary for Pond SB1-OLD: TO DP#2

[62] Hint: Exceeded Reach DMH-C OUTLET depth by 1.50' @ 24.90 hrs

Inflow Area = 2.265 ac, 25.48% Impervious, Inflow Depth = 1.64" for 25-Year event
Inflow = 3.21 cfs @ 12.06 hrs, Volume= 0.310 af
Outflow = 1.99 cfs @ 12.25 hrs, Volume= 0.208 af, Atten= 38%, Lag= 11.4 min
Primary = 1.99 cfs @ 12.25 hrs, Volume= 0.208 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 880.69' @ 12.25 hrs Surf.Area= 3,724 sf Storage= 5,116 cf

Plug-Flow detention time= 200.6 min calculated for 0.208 af (67% of inflow)
Center-of-Mass det. time= 89.4 min (907.6 - 818.2)

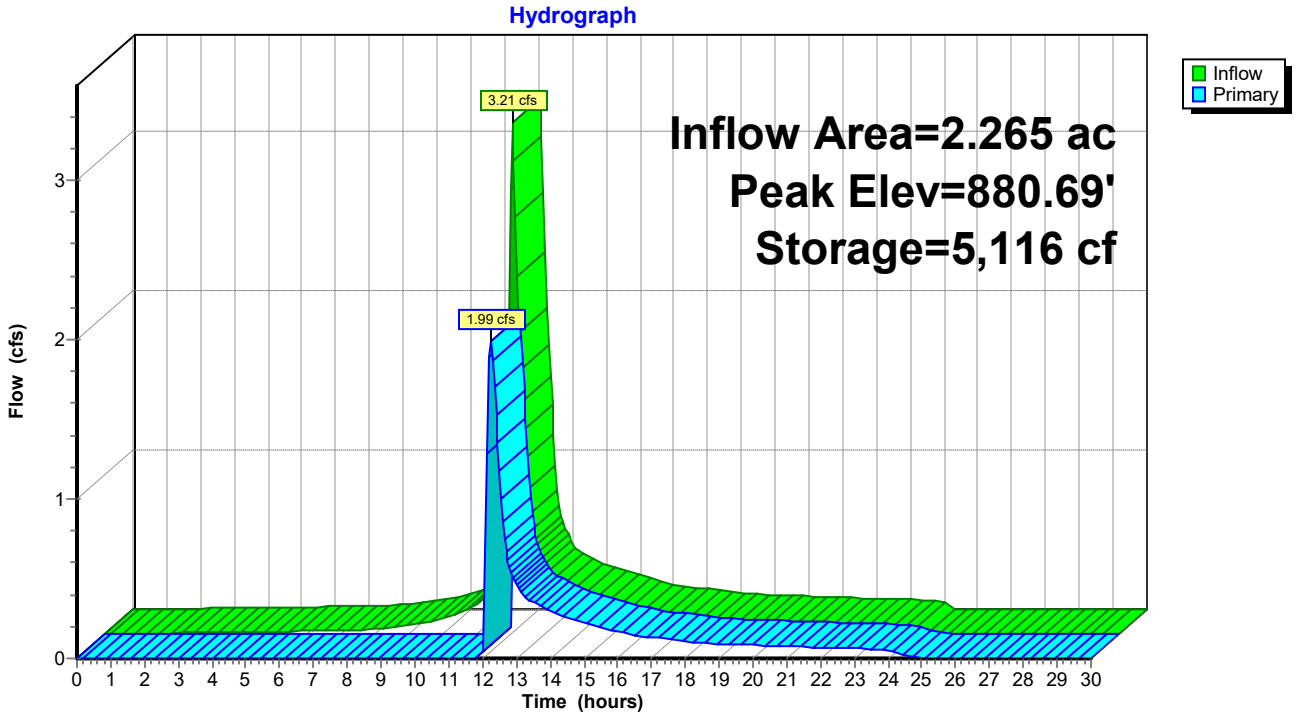
Volume	Invert	Avail.Storage	Storage Description
#1	879.00'	6,327 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
879.00	2,346	0	0
881.00	3,981	6,327	6,327

Device	Routing	Invert	Outlet Devices
#1	Primary	880.50'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=1.99 cfs @ 12.25 hrs HW=880.69' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 1.99 cfs @ 1.07 fps)

Pond SB1-OLD: TO DP#2



Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment P11: TO DP #1 Runoff Area=841,459 sf 0.68% Impervious Runoff Depth=1.02"
Flow Length=1,169' Tc=14.9 min CN=45 Runoff=11.92 cfs 1.634 af

Subcatchment P111: TO 1P Runoff Area=494,552 sf 1.93% Impervious Runoff Depth=0.70"
Flow Length=1,156' Tc=23.2 min CN=41 Runoff=3.36 cfs 0.664 af

Subcatchment P112: TO DB11 Runoff Area=168,295 sf 0.17% Impervious Runoff Depth=0.61"
Flow Length=644' Tc=11.8 min CN=39 Runoff=1.03 cfs 0.195 af

Subcatchment P113: TO DB11 Runoff Area=110,958 sf 0.00% Impervious Runoff Depth=1.18"
Flow Length=350' Tc=11.3 min CN=47 Runoff=2.21 cfs 0.250 af

Subcatchment P114: P114 Runoff Area=242,907 sf 0.00% Impervious Runoff Depth=0.42"
Flow Length=635' Tc=27.8 min CN=36 Runoff=0.60 cfs 0.194 af

Subcatchment P12: TO BASIN #2 Runoff Area=253,045 sf 0.00% Impervious Runoff Depth=1.99"
Flow Length=915' Tc=9.8 min CN=57 Runoff=11.01 cfs 0.965 af

Subcatchment P121: TO DP12 Runoff Area=847,404 sf 0.00% Impervious Runoff Depth=0.97"
Flow Length=1,458' Tc=36.2 min CN=44 Runoff=8.21 cfs 1.578 af

Subcatchment P122: TO DB12 Runoff Area=311,821 sf 0.00% Impervious Runoff Depth=1.09"
Flow Length=577' Tc=10.5 min CN=46 Runoff=5.54 cfs 0.648 af

Subcatchment P123: TO D.BASIN#13 Runoff Area=121,880 sf 0.00% Impervious Runoff Depth=1.63"
Flow Length=460' Tc=8.4 min CN=53 Runoff=4.25 cfs 0.380 af

Subcatchment P13: TO BASIN#1 Runoff Area=92,916 sf 0.00% Impervious Runoff Depth=1.80"
Flow Length=853' Tc=7.5 min CN=55 Runoff=3.83 cfs 0.320 af

Subcatchment P131: TO DP131 Runoff Area=245,753 sf 0.00% Impervious Runoff Depth=1.63"
Flow Length=308' Tc=15.2 min CN=53 Runoff=7.06 cfs 0.766 af

Subcatchment P141: TO DP14 Runoff Area=72,092 sf 0.00% Impervious Runoff Depth=1.38"
Flow Length=626' Tc=19.4 min CN=50 Runoff=1.51 cfs 0.191 af

Subcatchment P142: TO D-BASIN#14 Runoff Area=51,980 sf 0.00% Impervious Runoff Depth=1.88"
Flow Length=75' Slope=0.0500 '/' Tc=5.6 min CN=56 Runoff=2.42 cfs 0.187 af

Subcatchment P151: TO DP15 Runoff Area=42,383 sf 10.17% Impervious Runoff Depth=2.66"
Flow Length=185' Tc=7.5 min CN=64 Runoff=2.80 cfs 0.216 af

Subcatchment P161: TO DP16 Runoff Area=60,411 sf 10.83% Impervious Runoff Depth=2.39"
Flow Length=635' Tc=20.5 min CN=61 Runoff=2.49 cfs 0.276 af

Subcatchment P21: TO DP#2 Runoff Area=1,361,392 sf 0.70% Impervious Runoff Depth=0.51"
Flow Length=2,645' Tc=74.2 min CN=38 Runoff=3.21 cfs 1.335 af

Subcatchment P21A: TO SB1 Runoff Area=55,508 sf 0.00% Impervious Runoff Depth=0.68"
Flow Length=325' Slope=0.0900 '/' Tc=5.3 min CN=40 Runoff=0.46 cfs 0.072 af

Subcatchment P21B: TO DCB-F Runoff Area=4,375 sf 49.10% Impervious Runoff Depth=3.01"
Flow Length=103' Tc=5.0 min CN=68 Runoff=0.35 cfs 0.025 af

Subcatchment P22: TO BASIN#3 Runoff Area=64,084 sf 0.00% Impervious Runoff Depth=0.90"
Flow Length=660' Tc=6.6 min CN=44 Runoff=0.93 cfs 0.111 af

Subcatchment P23: TO BASIN #4 Runoff Area=63,337 sf 3.28% Impervious Runoff Depth=0.72"
Flow Length=180' Tc=5.0 min CN=41 Runoff=0.60 cfs 0.088 af

Subcatchment P24: TO BASIN#5 Runoff Area=44,933 sf 3.16% Impervious Runoff Depth=0.92"
Flow Length=385' Tc=5.0 min CN=44 Runoff=0.72 cfs 0.079 af

Subcatchment P25: TO DCB-D Runoff Area=2,108 sf 100.00% Impervious Runoff Depth=6.26"
Tc=0.0 min CN=98 Runoff=0.35 cfs 0.025 af

Subcatchment P26: TO DCB-A Runoff Area=19,626 sf 43.07% Impervious Runoff Depth=3.91"
Tc=0.0 min CN=77 Runoff=2.37 cfs 0.147 af

Subcatchment P27: TO DCB-B Runoff Area=8,741 sf 47.12% Impervious Runoff Depth=4.07"
Flow Length=286' Tc=5.0 min CN=78 Runoff=0.95 cfs 0.068 af

Subcatchment P28: TO DCB-C Runoff Area=4,121 sf 100.00% Impervious Runoff Depth=6.26"
Flow Length=286' Tc=5.0 min CN=98 Runoff=0.61 cfs 0.049 af

Subcatchment P29: TO DCB-D Runoff Area=4,188 sf 100.00% Impervious Runoff Depth=6.26"
Flow Length=280' Tc=5.0 min CN=98 Runoff=0.62 cfs 0.050 af

Subcatchment PS1: TO DCB#1 Runoff Area=17,260 sf 26.33% Impervious Runoff Depth=3.28"
Flow Length=210' Tc=7.3 min CN=71 Runoff=1.44 cfs 0.108 af

Subcatchment PS2: TO DCB#2 Runoff Area=12,294 sf 37.25% Impervious Runoff Depth=3.69"
Flow Length=225' Tc=5.0 min CN=75 Runoff=1.22 cfs 0.087 af

Reach 1R: (new Reach) Avg. Flow Depth=0.03' Max Vel=0.05 fps Inflow=0.37 cfs 0.306 af
n=0.400 L=268.0' S=0.0149 '/' Capacity=92.37 cfs Outflow=0.34 cfs 0.242 af

Reach 2R: WOODS Avg. Flow Depth=0.03' Max Vel=0.06 fps Inflow=0.37 cfs 0.438 af
n=0.400 L=429.0' S=0.0228 '/' Capacity=35.67 cfs Outflow=0.34 cfs 0.321 af

Reach 3R: GRASS Avg. Flow Depth=0.01' Max Vel=0.04 fps Inflow=0.04 cfs 0.061 af
n=0.240 L=14.0' S=0.0357 '/' Capacity=74.34 cfs Outflow=0.04 cfs 0.060 af

Reach 4R: (new Reach) Avg. Flow Depth=0.00' Max Vel=0.00 fps
3.0" Round Pipe n=0.020 L=100.0' S=0.0050 '/' Capacity=0.04 cfs Outflow=0.00 cfs 0.000 af

Reach 5R: WOODS Avg. Flow Depth=0.03' Max Vel=0.10 fps Inflow=0.60 cfs 0.436 af
n=0.400 L=75.0' S=0.0800 '/' Capacity=66.76 cfs Outflow=0.53 cfs 0.426 af

Reach 6R: WOODS Avg. Flow Depth=0.01' Max Vel=0.03 fps Inflow=0.04 cfs 0.060 af
n=0.400 L=259.0' S=0.0405 '/' Capacity=47.52 cfs Outflow=0.04 cfs 0.044 af

Reach 7R: GRASS Avg. Flow Depth=0.13' Max Vel=0.25 fps Inflow=6.34 cfs 0.831 af
n=0.240 L=20.0' S=0.0250 '/' Capacity=62.20 cfs Outflow=6.33 cfs 0.831 af

Reach 8R: WOODS Avg. Flow Depth=0.16' Max Vel=0.10 fps Inflow=6.33 cfs 0.831 af
n=0.400 L=222.0' S=0.0090 '/' Capacity=22.40 cfs Outflow=3.43 cfs 0.816 af

Reach 9R: WOODS-2 Avg. Flow Depth=0.05' Max Vel=0.06 fps Inflow=1.31 cfs 0.416 af
n=0.400 L=679.0' S=0.0147 '/' Capacity=28.64 cfs Outflow=0.52 cfs 0.345 af

Reach 10R: WOODS-1 Avg. Flow Depth=0.05' Max Vel=0.10 fps Inflow=3.94 cfs 0.335 af
n=0.400 L=400.0' S=0.0400 '/' Capacity=47.20 cfs Outflow=1.11 cfs 0.328 af

Reach 11R: WOODS-3 Avg. Flow Depth=0.06' Max Vel=0.03 fps Inflow=0.59 cfs 0.403 af
n=0.400 L=577.0' S=0.0035 '/' Capacity=13.90 cfs Outflow=0.38 cfs 0.155 af

Reach 12R: GRASS Avg. Flow Depth=0.01' Max Vel=0.12 fps Inflow=0.50 cfs 0.088 af
n=0.240 L=170.0' S=0.1000 '/' Capacity=124.39 cfs Outflow=0.33 cfs 0.088 af

Reach 13R: WOODS-4 Avg. Flow Depth=0.03' Max Vel=0.04 fps Inflow=0.38 cfs 0.155 af
n=0.400 L=643.0' S=0.0124 '/' Capacity=26.33 cfs Outflow=0.04 cfs 0.003 af

Reach 14R: WOODS Avg. Flow Depth=0.02' Max Vel=0.07 fps Inflow=0.55 cfs 0.079 af
n=0.400 L=142.0' S=0.0563 '/' Capacity=56.02 cfs Outflow=0.30 cfs 0.079 af

Reach 15R: WOODS Avg. Flow Depth=0.03' Max Vel=0.06 fps Inflow=0.53 cfs 0.426 af
n=0.400 L=429.0' S=0.0284 '/' Capacity=39.80 cfs Outflow=0.32 cfs 0.328 af

Reach 16R: WOODS Avg. Flow Depth=0.03' Max Vel=0.05 fps Inflow=0.55 cfs 0.111 af
n=0.400 L=185.0' S=0.0227 '/' Capacity=35.56 cfs Outflow=0.32 cfs 0.110 af

Reach 17R: WOODS-2 Avg. Flow Depth=0.01' Max Vel=0.03 fps Inflow=0.30 cfs 0.079 af
n=0.400 L=474.0' S=0.0169 '/' Capacity=30.66 cfs Outflow=0.08 cfs 0.058 af

Reach 18R: WOODS-4 Avg. Flow Depth=0.05' Max Vel=0.04 fps Inflow=0.34 cfs 0.321 af
n=0.400 L=339.0' S=0.0059 '/' Capacity=18.13 cfs Outflow=0.31 cfs 0.180 af

Reach CB-A: TO DMH-X Avg. Flow Depth=0.60' Max Vel=4.80 fps Inflow=2.37 cfs 0.147 af
12.0" Round Pipe n=0.013 L=14.4' S=0.0097 '/' Capacity=3.51 cfs Outflow=2.36 cfs 0.147 af

Reach CB-B: TO DMH-A Avg. Flow Depth=0.35' Max Vel=3.82 fps Inflow=0.95 cfs 0.068 af
12.0" Round Pipe n=0.013 L=24.9' S=0.0100 '/' Capacity=3.57 cfs Outflow=0.95 cfs 0.068 af

Reach CB-D: TO DMH-B Avg. Flow Depth=0.26' Max Vel=3.79 fps Inflow=0.62 cfs 0.050 af
12.0" Round Pipe n=0.013 L=14.4' S=0.0139 '/' Capacity=4.20 cfs Outflow=0.61 cfs 0.050 af

Reach CB-E: TO DMH-B Avg. Flow Depth=0.16' Max Vel=4.34 fps Inflow=0.35 cfs 0.025 af
12.0" Round Pipe n=0.013 L=71.7' S=0.0317 '/' Capacity=6.34 cfs Outflow=0.34 cfs 0.025 af

Reach DCB-C: TO DMH-A Avg. Flow Depth=0.28' Max Vel=3.36 fps Inflow=0.61 cfs 0.049 af
12.0" Round Pipe n=0.013 L=24.9' S=0.0100 '/' Capacity=3.57 cfs Outflow=0.60 cfs 0.049 af

Reach DCB-F: (new Reach) Inflow=0.35 cfs 0.025 af
Outflow=0.35 cfs 0.025 af

Reach DCB1: TO DMH1 Avg. Flow Depth=0.37' Max Vel=5.34 fps Inflow=1.44 cfs 0.108 af
12.0" Round Pipe n=0.013 L=11.0' S=0.0182 '/' Capacity=4.80 cfs Outflow=1.43 cfs 0.108 af

Reach DCB2: TO DMH#1 Avg. Flow Depth=0.39' Max Vel=4.25 fps Inflow=1.22 cfs 0.087 af
12.0" Round Pipe n=0.013 L=18.0' S=0.0111 '/' Capacity=3.76 cfs Outflow=1.22 cfs 0.087 af

Reach DMH-A: TO DMH-D Avg. Flow Depth=0.56' Max Vel=3.36 fps Inflow=1.55 cfs 0.117 af
12.0" Round Pipe n=0.013 L=248.2' S=0.0050 '/' Capacity=2.52 cfs Outflow=1.47 cfs 0.117 af

Reach DMH-B: TO DMH-C Avg. Flow Depth=0.56' Max Vel=9.49 fps Inflow=4.29 cfs 0.365 af
12.0" Round Pipe n=0.013 L=114.3' S=0.0400 '/' Capacity=7.12 cfs Outflow=4.29 cfs 0.365 af

Reach DMH-C: TO S. BASIN Avg. Flow Depth=0.53' Max Vel=10.28 fps Inflow=4.29 cfs 0.365 af
12.0" Round Pipe n=0.013 L=189.0' S=0.0492 '/' Capacity=7.90 cfs Outflow=4.27 cfs 0.365 af

Reach DMH-D: TO DMH-B Avg. Flow Depth=0.56' Max Vel=7.07 fps Inflow=3.23 cfs 0.264 af
12.0" Round Pipe n=0.013 L=29.0' S=0.0224 '/' Capacity=5.33 cfs Outflow=3.21 cfs 0.264 af

Reach DMH1: TO DMH#2 Avg. Flow Depth=0.63' Max Vel=5.00 fps Inflow=2.62 cfs 0.195 af
12.0" Round Pipe n=0.013 L=215.0' S=0.0102 '/' Capacity=3.60 cfs Outflow=2.53 cfs 0.195 af

Reach DMH2: TO D.BASIN#13 Avg. Flow Depth=0.65' Max Vel=4.62 fps Inflow=2.53 cfs 0.195 af
12.0" Round Pipe n=0.013 L=220.0' S=0.0086 '/' Capacity=3.31 cfs Outflow=2.45 cfs 0.195 af

Reach DP1: DP#1 Inflow=11.92 cfs 2.494 af
Outflow=11.92 cfs 2.494 af

Reach DP12: DP12 Inflow=8.21 cfs 2.618 af
Outflow=8.21 cfs 2.618 af

Reach DP13: DP131 Inflow=7.06 cfs 0.766 af
Outflow=7.06 cfs 0.766 af

Reach DP14: DP14 Inflow=1.51 cfs 0.281 af
Outflow=1.51 cfs 0.281 af

Reach DP15: DP15 Inflow=2.80 cfs 0.216 af
Outflow=2.80 cfs 0.216 af

Reach DP16: DP16 Inflow=2.49 cfs 0.276 af
Outflow=2.49 cfs 0.276 af

Reach DP2: DP#2 Inflow=3.21 cfs 1.517 af
Outflow=3.21 cfs 1.517 af

Reach OL1: (new Reach) Avg. Flow Depth=0.02' Max Vel=0.17 fps Inflow=0.37 cfs 0.309 af
n=0.240 L=50.0' S=0.1200 '/' Capacity=222.51 cfs Outflow=0.37 cfs 0.306 af

Reach OL121: WOODS-4 Avg. Flow Depth=0.06' Max Vel=0.21 fps Inflow=1.96 cfs 0.604 af
n=0.400 L=40.0' S=0.1375 '/' Capacity=65.83 cfs Outflow=1.95 cfs 0.602 af

Reach OL122: WOODS-4 Avg. Flow Depth=0.10' Max Vel=0.06 fps Inflow=1.95 cfs 0.602 af
n=0.400 L=251.0' S=0.0060 '/' Capacity=18.25 cfs Outflow=1.17 cfs 0.570 af

Reach OL123: GRASS Avg. Flow Depth=0.09' Max Vel=0.27 fps Inflow=3.75 cfs 0.547 af
n=0.410 L=44.0' S=0.1364 '/' Capacity=63.96 cfs Outflow=3.73 cfs 0.547 af

Reach OL124: WOODS-4 Avg. Flow Depth=0.11' Max Vel=0.23 fps Inflow=3.73 cfs 0.547 af
n=0.400 L=64.0' S=0.0781 '/' Capacity=49.62 cfs Outflow=3.69 cfs 0.547 af

Reach OL125: WOODS-4 Avg. Flow Depth=0.12' Max Vel=0.07 fps Inflow=2.34 cfs 1.111 af
n=0.400 L=367.0' S=0.0068 '/' Capacity=19.48 cfs Outflow=1.81 cfs 1.039 af

Reach OL126: WOODS-4 Avg. Flow Depth=0.13' Max Vel=0.09 fps Inflow=3.69 cfs 0.547 af
n=0.400 L=185.0' S=0.0081 '/' Capacity=21.25 cfs Outflow=2.33 cfs 0.541 af

Reach OL141: WOODS Avg. Flow Depth=0.01' Max Vel=0.05 fps Inflow=0.08 cfs 0.121 af
n=0.400 L=261.0' S=0.0996 '/' Capacity=23.36 cfs Outflow=0.08 cfs 0.101 af

Reach OL142: WOODS Avg. Flow Depth=0.01' Max Vel=0.04 fps Inflow=0.08 cfs 0.101 af
n=0.400 L=116.0' S=0.0517 '/' Capacity=16.83 cfs Outflow=0.08 cfs 0.091 af

Reach SW1A: (new Reach) Avg. Flow Depth=0.24' Max Vel=1.92 fps Inflow=2.21 cfs 0.250 af
n=0.040 L=300.0' S=0.0225 '/' Capacity=125.94 cfs Outflow=2.13 cfs 0.250 af

Reach SW1B: (new Reach) Avg. Flow Depth=0.17' Max Vel=2.85 fps Inflow=2.13 cfs 0.250 af
n=0.040 L=255.0' S=0.0749 '/' Capacity=229.79 cfs Outflow=2.09 cfs 0.250 af

Reach SW2A: (new Reach) Avg. Flow Depth=0.33' Max Vel=2.03 fps Inflow=3.36 cfs 0.664 af
n=0.040 L=118.0' S=0.0169 '/' Capacity=109.31 cfs Outflow=3.34 cfs 0.664 af

Reach WETLAND: WETLAND Inflow=0.60 cfs 0.436 af
Outflow=0.60 cfs 0.436 af

Pond DB1: TO DP#1 Peak Elev=819.42' Storage=12,122 cf Inflow=3.83 cfs 0.320 af
Primary=0.04 cfs 0.061 af Secondary=0.00 cfs 0.000 af Outflow=0.04 cfs 0.061 af

Pond DB11: TO WETLAND Peak Elev=884.53' Storage=38,776 cf Inflow=4.32 cfs 1.093 af
Primary=0.37 cfs 0.309 af Secondary=0.00 cfs 0.000 af Outflow=0.37 cfs 0.309 af

Pond DB12: TO DP12 Peak Elev=885.49' Storage=6,845 cf Inflow=5.54 cfs 0.648 af
Primary=1.96 cfs 0.604 af Secondary=0.00 cfs 0.000 af Outflow=1.96 cfs 0.604 af

Pond DB13: TO DP#12 Peak Elev=893.51' Storage=4,942 cf Inflow=6.70 cfs 0.575 af
Primary=3.75 cfs 0.547 af Secondary=0.00 cfs 0.000 af Outflow=3.75 cfs 0.547 af

Pond DB14: TO DP#14 Peak Elev=903.78' Storage=5,085 cf Inflow=2.42 cfs 0.187 af
Primary=0.08 cfs 0.121 af Secondary=0.00 cfs 0.000 af Outflow=0.08 cfs 0.121 af

Pond DB2: TO DP#1 Peak Elev=809.00' Storage=9,645 cf Inflow=11.01 cfs 0.965 af
Primary=6.34 cfs 0.831 af Secondary=0.00 cfs 0.000 af Outflow=6.34 cfs 0.831 af

Pond DB3: TO DP#2 Peak Elev=856.11' Storage=382 cf Inflow=0.93 cfs 0.111 af
Primary=0.55 cfs 0.111 af Secondary=0.00 cfs 0.000 af Outflow=0.55 cfs 0.111 af

Pond DB4: TO DP#2 Peak Elev=888.03' Storage=190 cf Inflow=0.60 cfs 0.088 af
Primary=0.50 cfs 0.088 af Secondary=0.00 cfs 0.000 af Outflow=0.50 cfs 0.088 af

Pond DB5: TO DP#2 Peak Elev=866.08' Storage=100 cf Inflow=0.72 cfs 0.079 af
Primary=0.55 cfs 0.079 af Secondary=0.00 cfs 0.000 af Outflow=0.55 cfs 0.079 af

Pond SB1: TO DB#11 Peak Elev=886.69' Storage=2,891 cf Inflow=3.34 cfs 0.664 af
Primary=2.48 cfs 0.648 af Secondary=0.00 cfs 0.000 af Outflow=2.48 cfs 0.648 af

Pond SB1-OLD: TO DP#2 Peak Elev=880.79' Storage=5,510 cf Inflow=4.49 cfs 0.437 af
Outflow=3.94 cfs 0.335 af

Total Runoff Area = 129.013 ac Runoff Volume = 10.707 af Average Runoff Depth = 1.00"
98.69% Pervious = 127.322 ac 1.31% Impervious = 1.691 ac

Summary for Subcatchment P11: TO DP #1

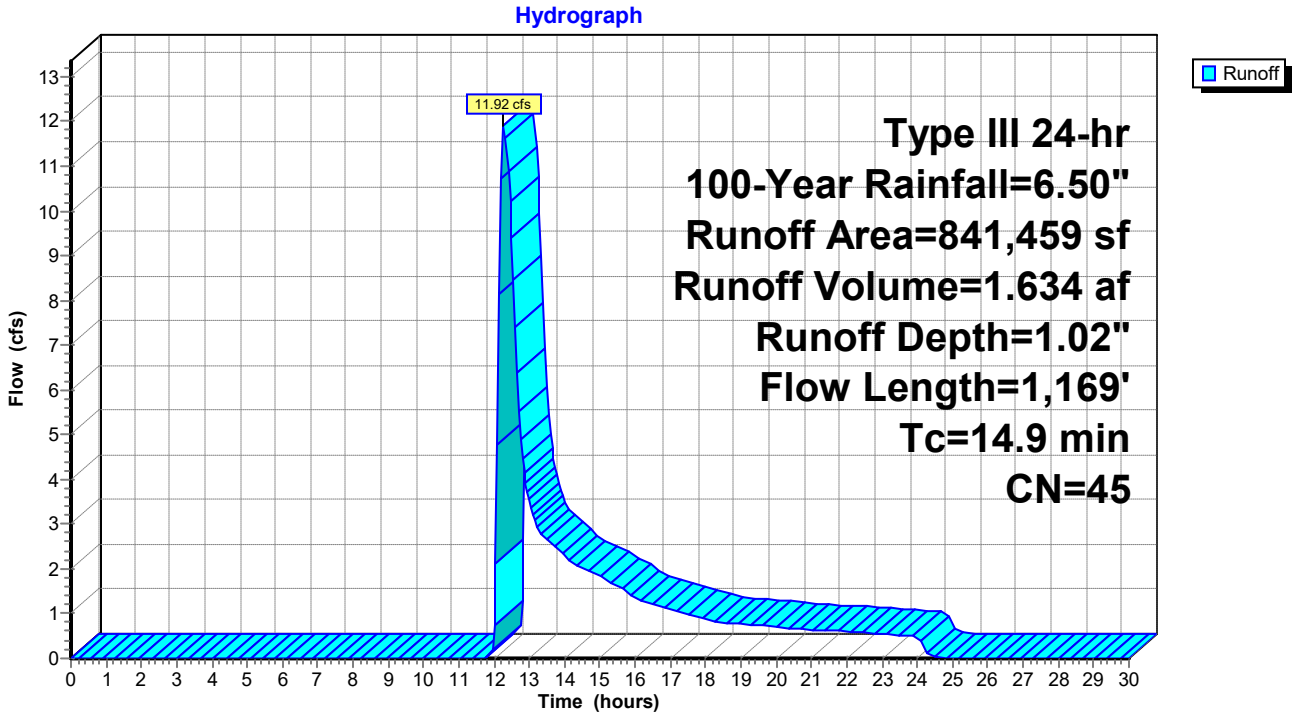
Runoff = 11.92 cfs @ 12.28 hrs, Volume= 1.634 af, Depth= 1.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.50"

Area (sf)	CN	Description
56,851	39	>75% Grass cover, Good, HSG A
81,519	30	Brush, Good, HSG A
427,679	30	Woods, Good, HSG A
45,535	74	>75% Grass cover, Good, HSG C
3,070	65	Brush, Good, HSG C
88,515	70	Woods, Good, HSG C
125,807	77	Woods, Good, HSG D
5,701	98	Paved parking, HSG B
6,782	61	>75% Grass cover, Good, HSG B
841,459	45	Weighted Average
835,758		99.32% Pervious Area
5,701		0.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.5	75	0.0830	0.27		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
1.3	361	0.0830	4.64		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
3.9	375	0.1010	1.59		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.4	144	0.1100	1.66		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.8	214	0.0350	0.94		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
14.9	1,169	Total			

Subcatchment P11: TO DP #1



Summary for Subcatchment P111: TO 1P

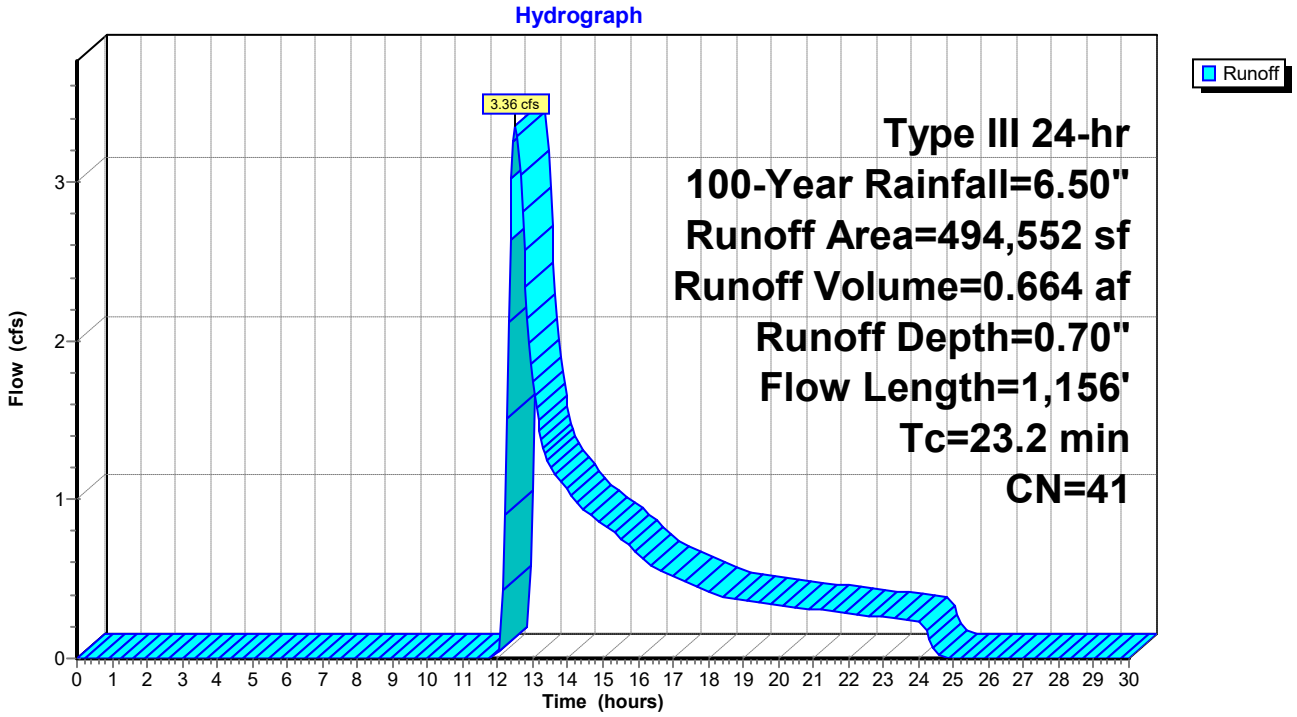
Runoff = 3.36 cfs @ 12.52 hrs, Volume= 0.664 af, Depth= 0.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.50"

Area (sf)	CN	Description
267,760	39	>75% Grass cover, Good, HSG A
146,825	30	Woods, Good, HSG A
8,905	98	Paved parking, HSG A
70,418	61	>75% Grass cover, Good, HSG B
644	98	Paved parking, HSG B
494,552	41	Weighted Average
485,003		98.07% Pervious Area
9,549		1.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	75	0.0480	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
4.2	245	0.0380	0.97		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.7	167	0.1080	1.64		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.6	113	0.0530	1.15		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.0	489	0.0290	2.74		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.2	50	0.0400	4.06		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	17	0.0590	3.91		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
23.2	1,156	Total			

Subcatchment P111: TO 1P



Summary for Subcatchment P112: TO DB11

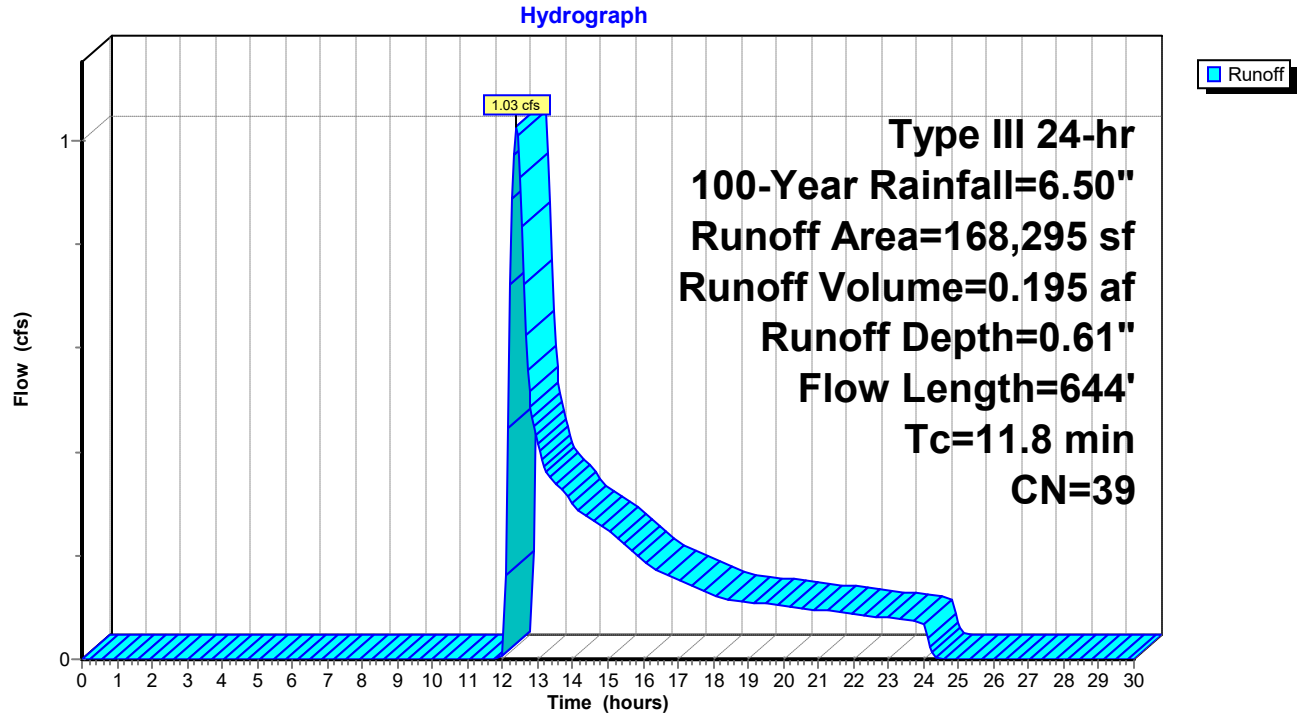
Runoff = 1.03 cfs @ 12.38 hrs, Volume= 0.195 af, Depth= 0.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.50"

Area (sf)	CN	Description
167,914	39	>75% Grass cover, Good, HSG A
281	98	Paved parking, HSG A
100	61	>75% Grass cover, Good, HSG B
168,295	39	Weighted Average
168,014		99.83% Pervious Area
281		0.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	75	0.0150	0.14		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.5	60	0.0150	1.97		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
2.3	491	0.0480	3.53		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.0	18	0.4440	10.73		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
11.8	644	Total			

Subcatchment P112: TO DB11



Summary for Subcatchment P113: TO DB11

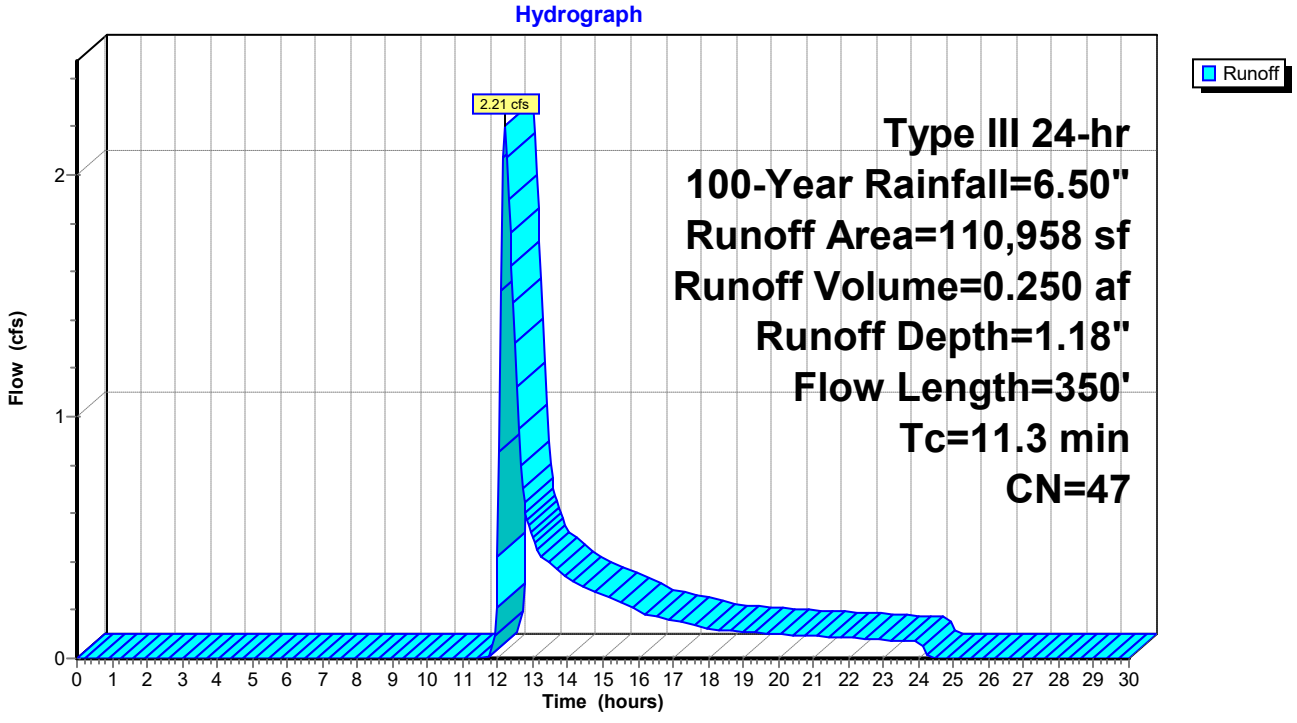
Runoff = 2.21 cfs @ 12.20 hrs, Volume= 0.250 af, Depth= 1.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.50"

Area (sf)	CN	Description
69,459	39	>75% Grass cover, Good, HSG A
41,499	61	>75% Grass cover, Good, HSG B
110,958	47	Weighted Average
110,958		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	75	0.0130	0.13		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.7	80	0.0130	1.84		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.0	195	0.0400	3.22		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
11.3	350	Total			

Subcatchment P113: TO DB11



Summary for Subcatchment P114: P114

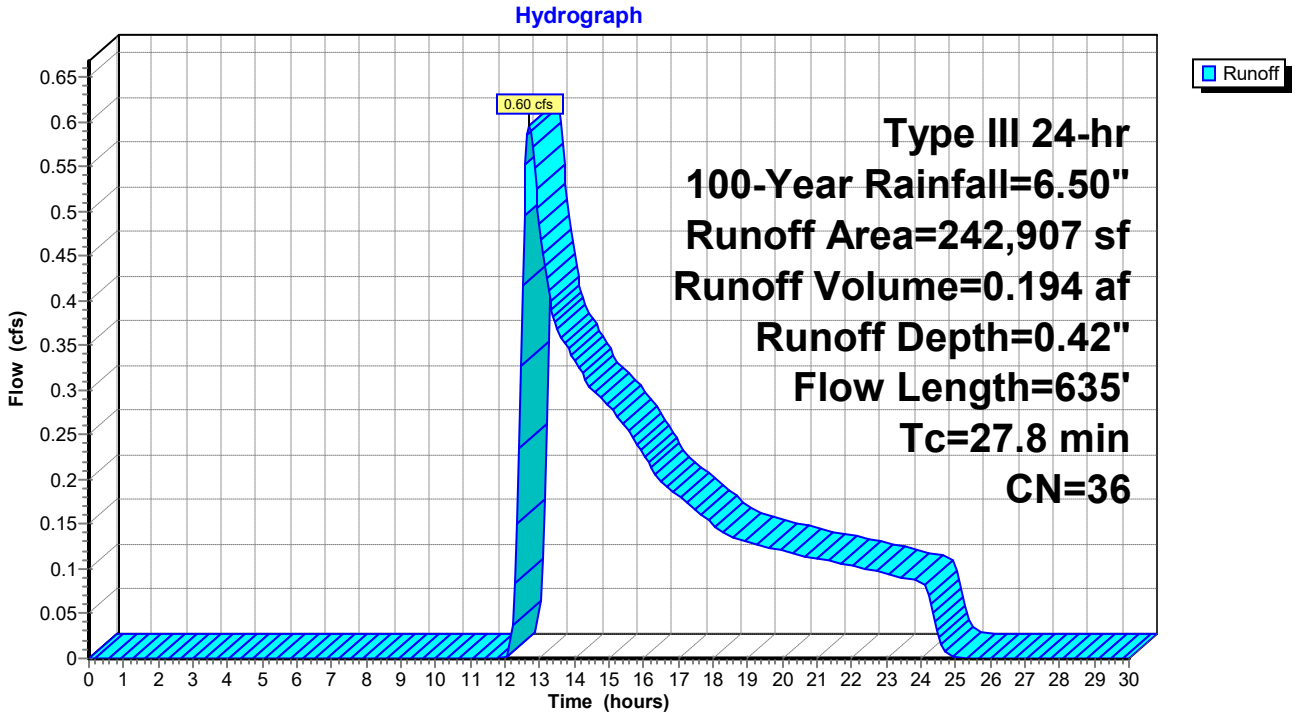
Runoff = 0.60 cfs @ 12.70 hrs, Volume= 0.194 af, Depth= 0.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.50"

Area (sf)	CN	Description
63,004	39	>75% Grass cover, Good, HSG A
157,080	30	Woods, Good, HSG A
1,859	61	>75% Grass cover, Good, HSG B
603	55	Woods, Good, HSG B
20,361	70	Woods, Good, HSG C
242,907	36	Weighted Average
242,907		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	75	0.0130	0.13		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.0	5	0.0130	1.84		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.1	30	0.0670	4.17		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.4	30	0.0670	1.29		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
4.5	244	0.0330	0.91		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
13.2	251	0.0040	0.32		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
27.8	635	Total			

Subcatchment P114: P114



Summary for Subcatchment P12: TO BASIN #2

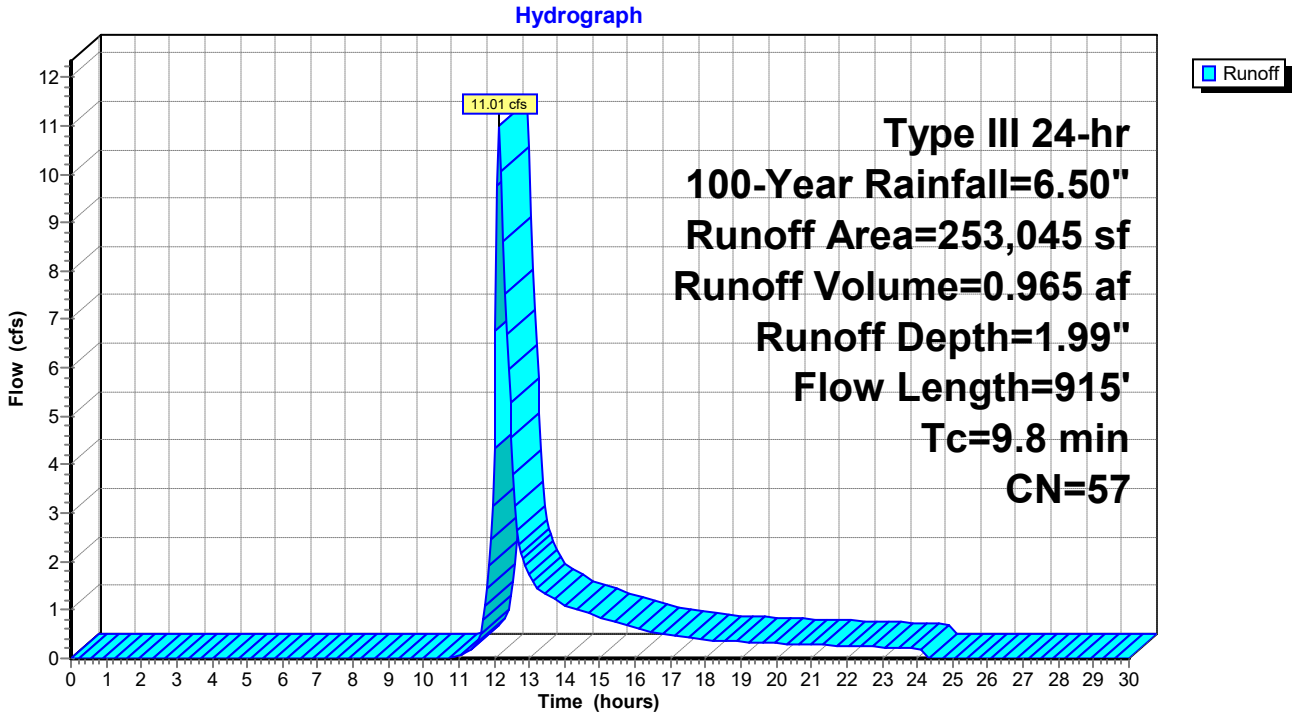
Runoff = 11.01 cfs @ 12.15 hrs, Volume= 0.965 af, Depth= 1.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.50"

Area (sf)	CN	Description
122,483	39	>75% Grass cover, Good, HSG A
1,193	76	Gravel roads, HSG A
129,369	74	>75% Grass cover, Good, HSG C
253,045	57	Weighted Average
253,045		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1	75	0.0690	0.18		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
0.0	12	0.0690	4.23		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.7	208	0.0860	4.72		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.0	18	0.3300	9.25		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.1	14	0.0100	1.61		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.4	77	0.0400	3.22		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.7	202	0.1000	5.09		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.8	309	0.1600	6.44		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
9.8	915	Total			

Subcatchment P12: TO BASIN #2



Summary for Subcatchment P121: TO DP12

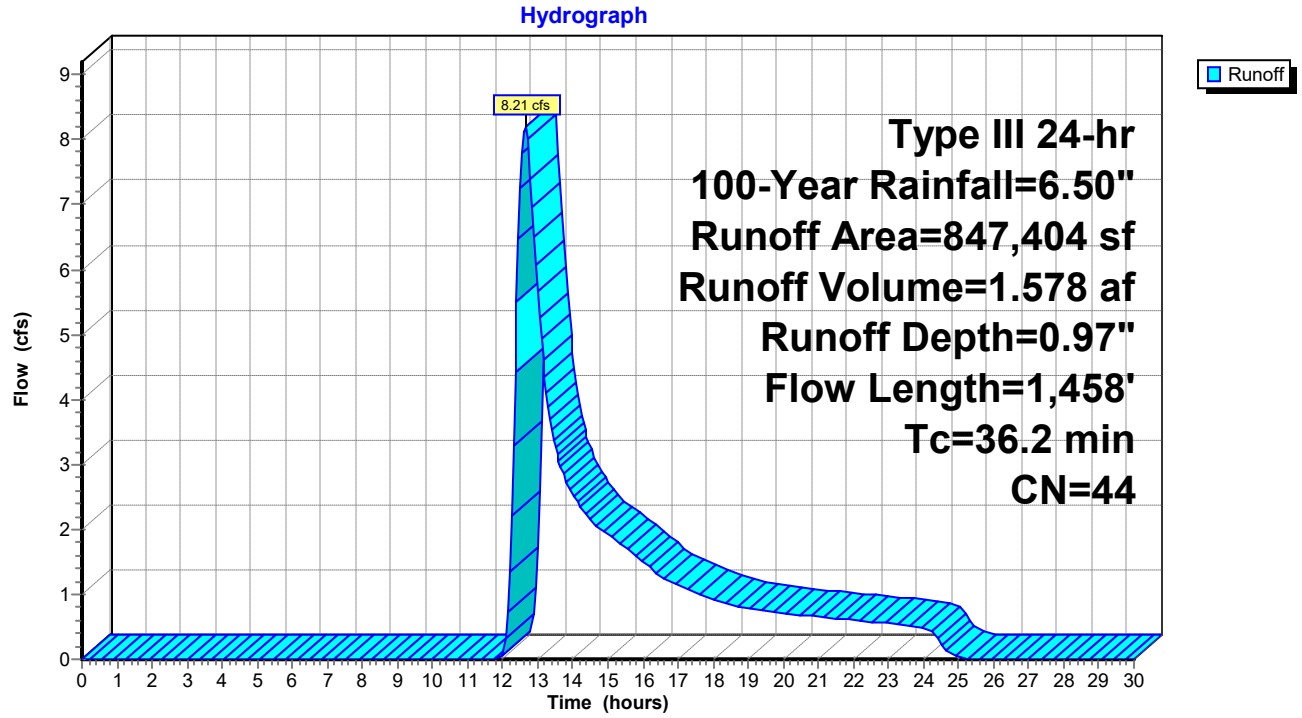
Runoff = 8.21 cfs @ 12.64 hrs, Volume= 1.578 af, Depth= 0.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.50"

Area (sf)	CN	Description
122,267	39	>75% Grass cover, Good, HSG A
308,952	30	Woods, Good, HSG A
129,820	61	>75% Grass cover, Good, HSG B
286,365	55	Woods, Good, HSG B
847,404	44	Weighted Average
847,404		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	75	0.0500	0.22		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
1.1	242	0.0500	3.60		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
8.7	601	0.0530	1.15		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
20.8	540	0.0075	0.43		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
36.2	1,458	Total			

Subcatchment P121: TO DP12



Summary for Subcatchment P122: TO DB12

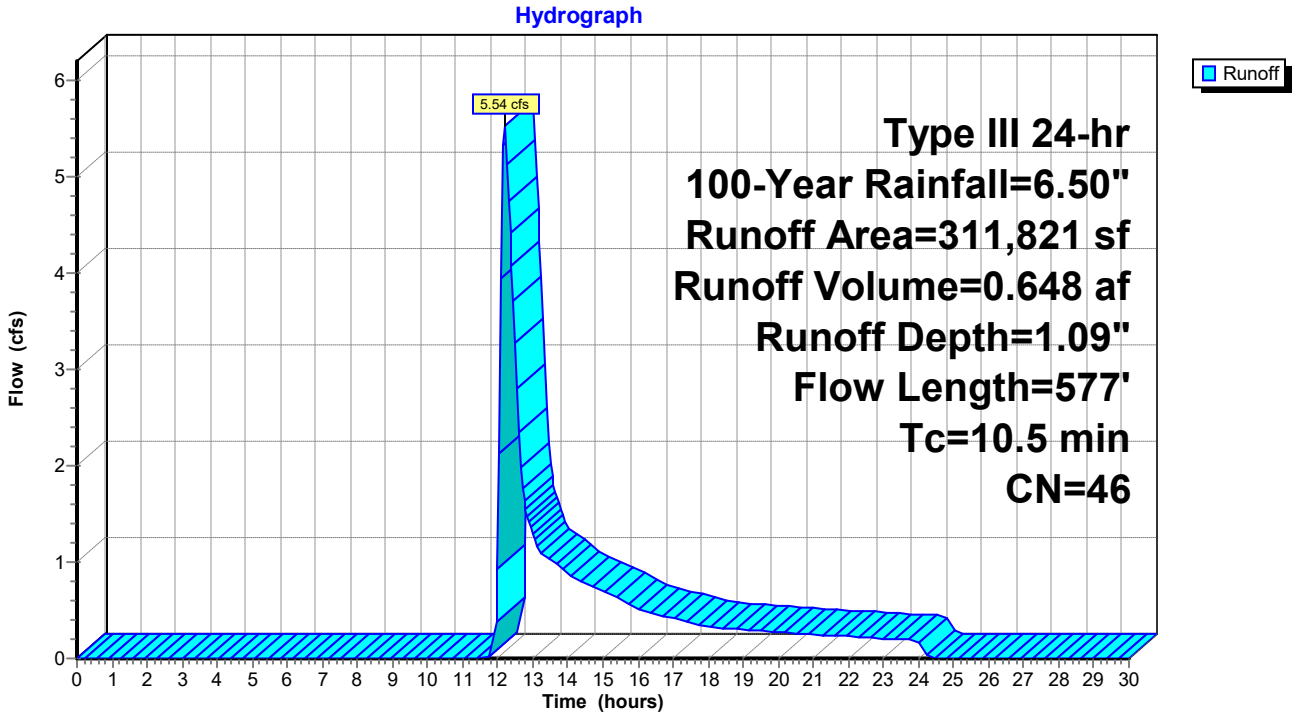
Runoff = 5.54 cfs @ 12.19 hrs, Volume= 0.648 af, Depth= 1.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.50"

Area (sf)	CN	Description
127,006	39	>75% Grass cover, Good, HSG A
60,526	30	Woods, Good, HSG A
124,289	61	>75% Grass cover, Good, HSG B
311,821	46	Weighted Average
311,821		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	75	0.0200	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.2	27	0.0200	2.28		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.4	90	0.0670	4.17		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.9	376	0.0400	3.22		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.0	9	0.3330	9.29		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
10.5	577	Total			

Subcatchment P122: TO DB12



Summary for Subcatchment P123: TO D.BASIN#13

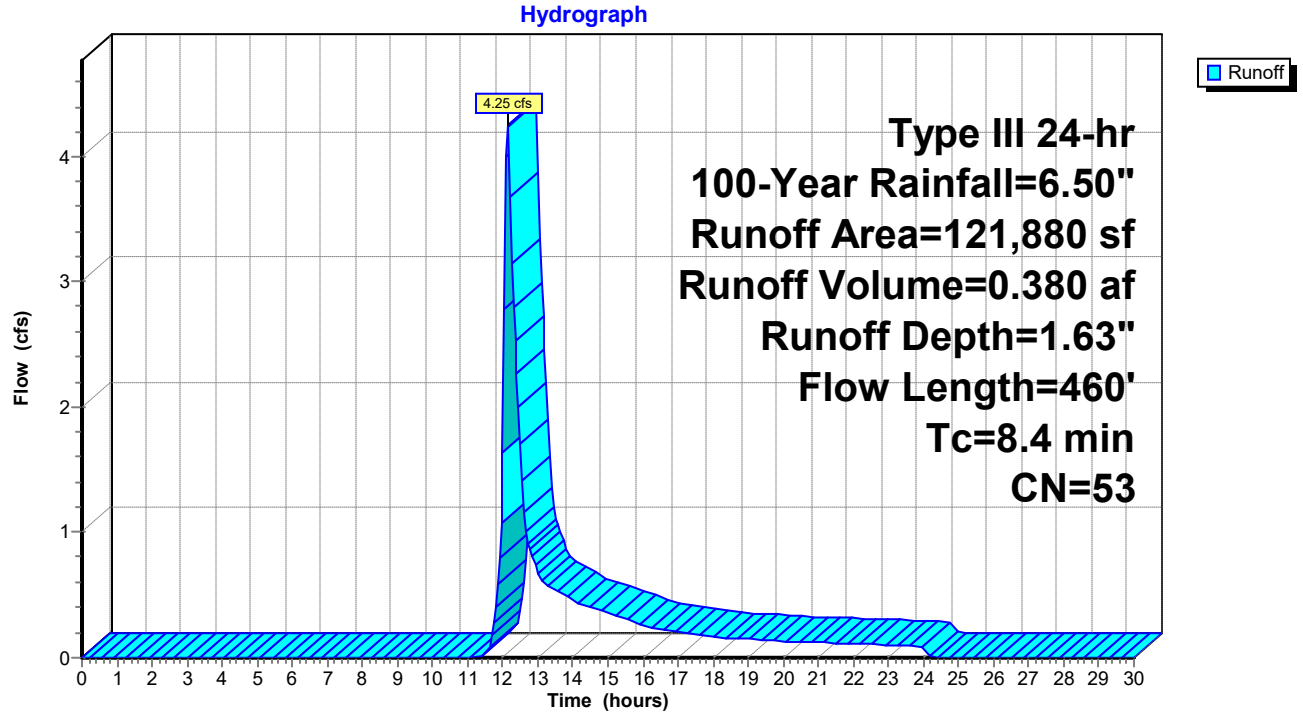
Runoff = 4.25 cfs @ 12.14 hrs, Volume= 0.380 af, Depth= 1.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.50"

Area (sf)	CN	Description
43,002	39	>75% Grass cover, Good, HSG A
70,744	61	>75% Grass cover, Good, HSG B
8,134	55	Woods, Good, HSG B
121,880	53	Weighted Average
121,880		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4	75	0.0360	0.20		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.0	8	0.0360	3.05		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.8	207	0.0670	4.17		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.2	170	0.0200	2.28		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
8.4	460	Total			

Subcatchment P123: TO D.BASIN#13



Summary for Subcatchment P13: TO BASIN#1

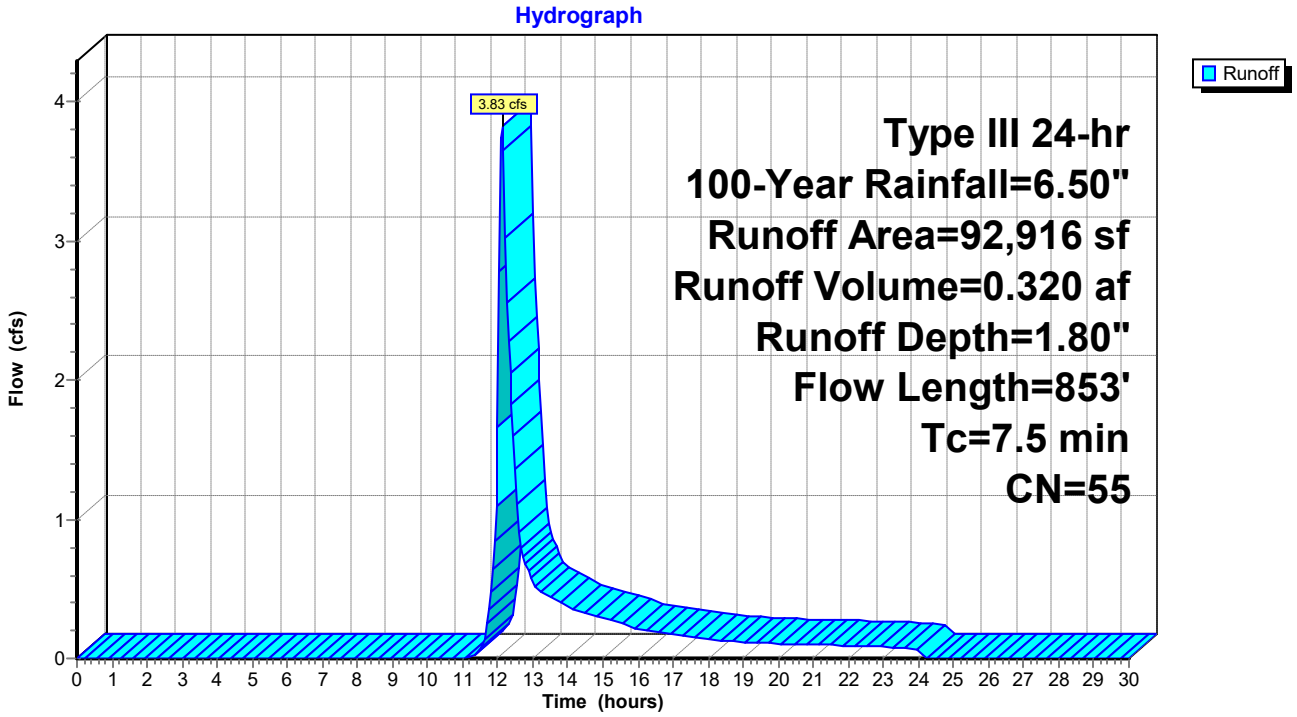
Runoff = 3.83 cfs @ 12.12 hrs, Volume= 0.320 af, Depth= 1.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.50"

Area (sf)	CN	Description
53,074	39	>75% Grass cover, Good, HSG A
13,231	76	Gravel roads, HSG A
23,298	74	>75% Grass cover, Good, HSG C
3,313	89	Gravel roads, HSG C
92,916	55	Weighted Average
92,916		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.9	75	0.0690	0.26		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.1	25	0.0690	4.23		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.7	200	0.1000	5.09		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.0	15	0.3300	9.25		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.2	37	0.0500	3.60		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.6	501	0.1000	5.09		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
7.5	853	Total			

Subcatchment P13: TO BASIN#1



Summary for Subcatchment P131: TO DP131

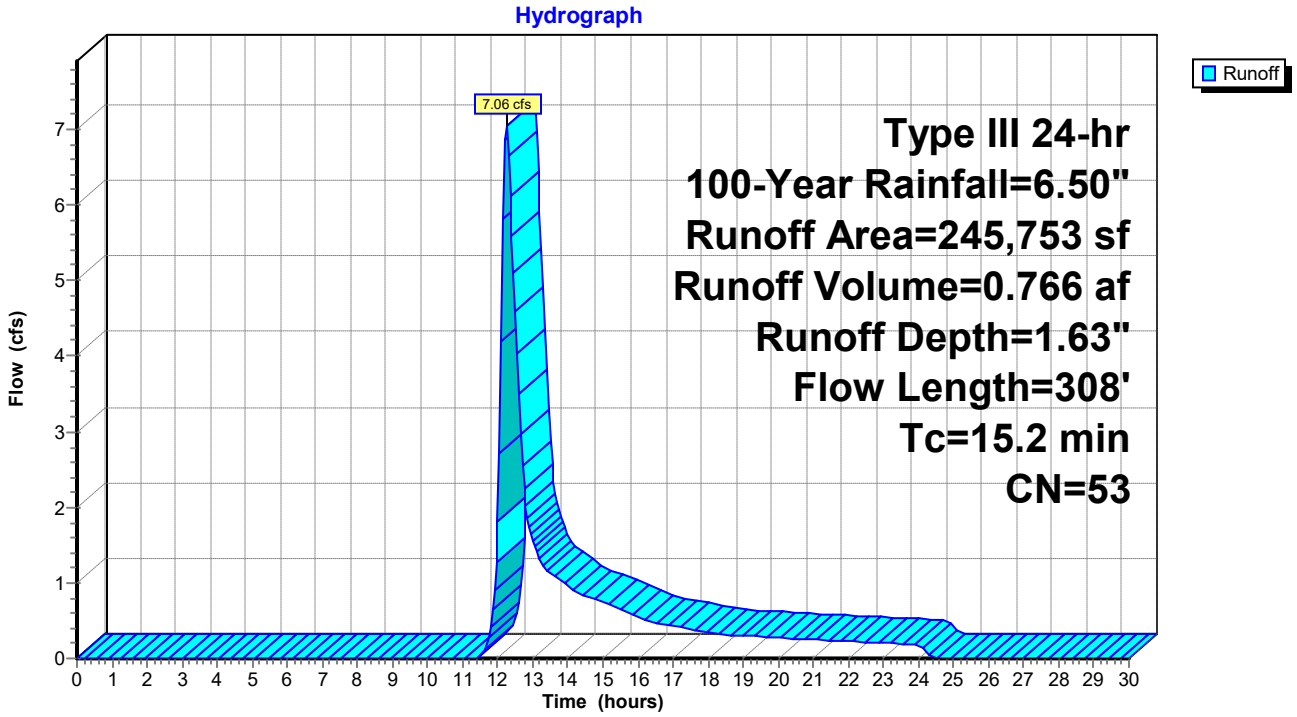
Runoff = 7.06 cfs @ 12.24 hrs, Volume= 0.766 af, Depth= 1.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.50"

Area (sf)	CN	Description
565	39	>75% Grass cover, Good, HSG A
3,137	30	Woods, Good, HSG A
5,000	61	>75% Grass cover, Good, HSG B
188,185	55	Woods, Good, HSG B
7,306	30	Brush, Good, HSG A
41,560	48	Brush, Good, HSG B
245,753	53	Weighted Average
245,753		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	10	0.0450	0.14		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
11.4	65	0.0450	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
0.3	17	0.0450	1.06		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.2	101	0.0800	1.41		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.1	115	0.1200	1.73		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.2	308	Total			

Subcatchment P131: TO DP131



Summary for Subcatchment P141: TO DP14

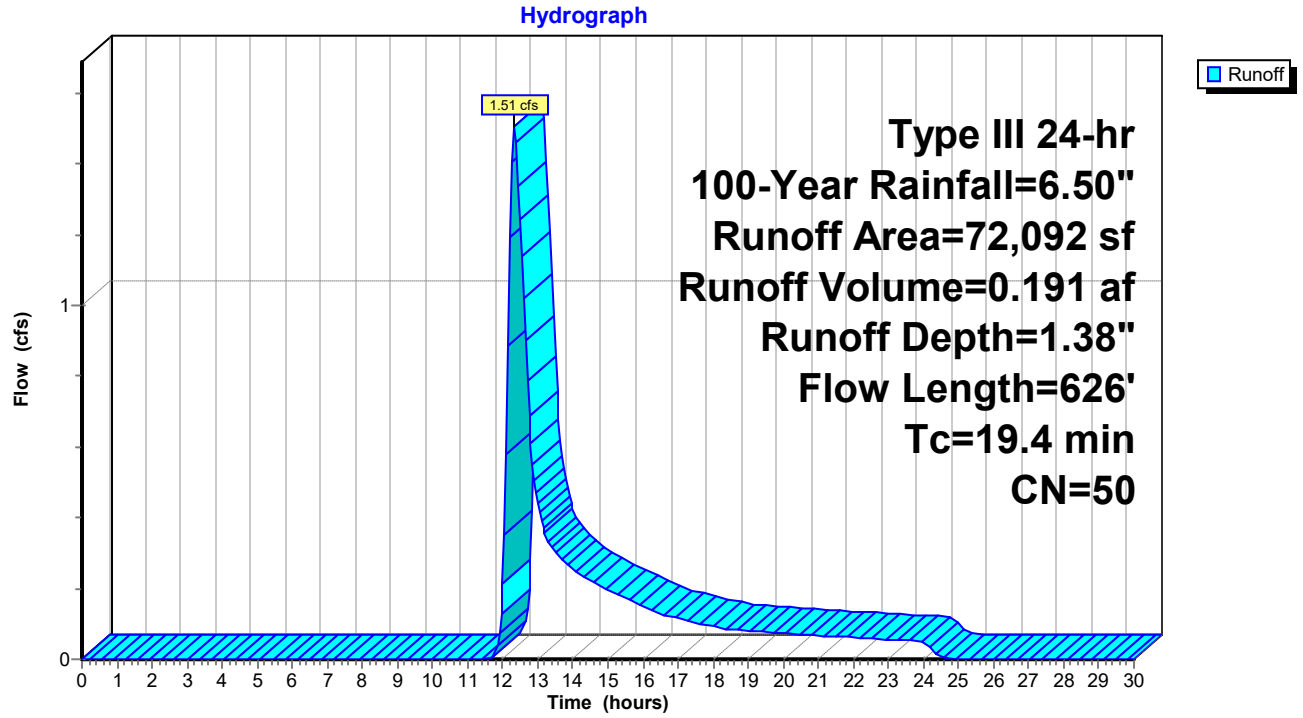
Runoff = 1.51 cfs @ 12.32 hrs, Volume= 0.191 af, Depth= 1.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.50"

Area (sf)	CN	Description
7,404	61	>75% Grass cover, Good, HSG B
46,382	55	Woods, Good, HSG B
4,366	39	>75% Grass cover, Good, HSG A
13,940	30	Woods, Good, HSG A
72,092	50	Weighted Average
72,092		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	75	0.0950	0.13		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
4.0	366	0.0950	1.54		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.5	69	0.1770	2.10		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
5.5	116	0.0050	0.35		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
19.4	626	Total			

Subcatchment P141: TO DP14



Summary for Subcatchment P142: TO D-BASIN#14

[49] Hint: Tc<2dt may require smaller dt

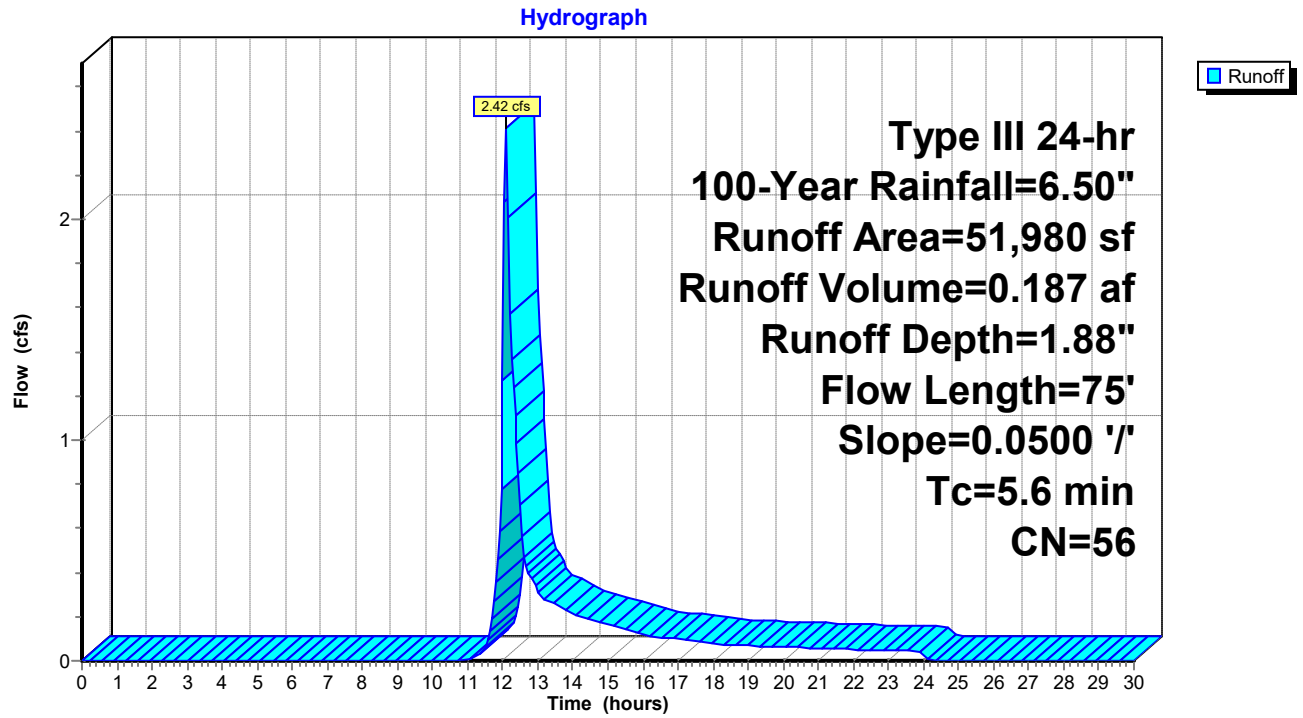
Runoff = 2.42 cfs @ 12.10 hrs, Volume= 0.187 af, Depth= 1.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.50"

Area (sf)	CN	Description
12,322	39	>75% Grass cover, Good, HSG A
39,658	61	>75% Grass cover, Good, HSG B
51,980	56	Weighted Average
51,980		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	75	0.0500	0.22		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"

Subcatchment P142: TO D-BASIN#14



Summary for Subcatchment P151: TO DP15

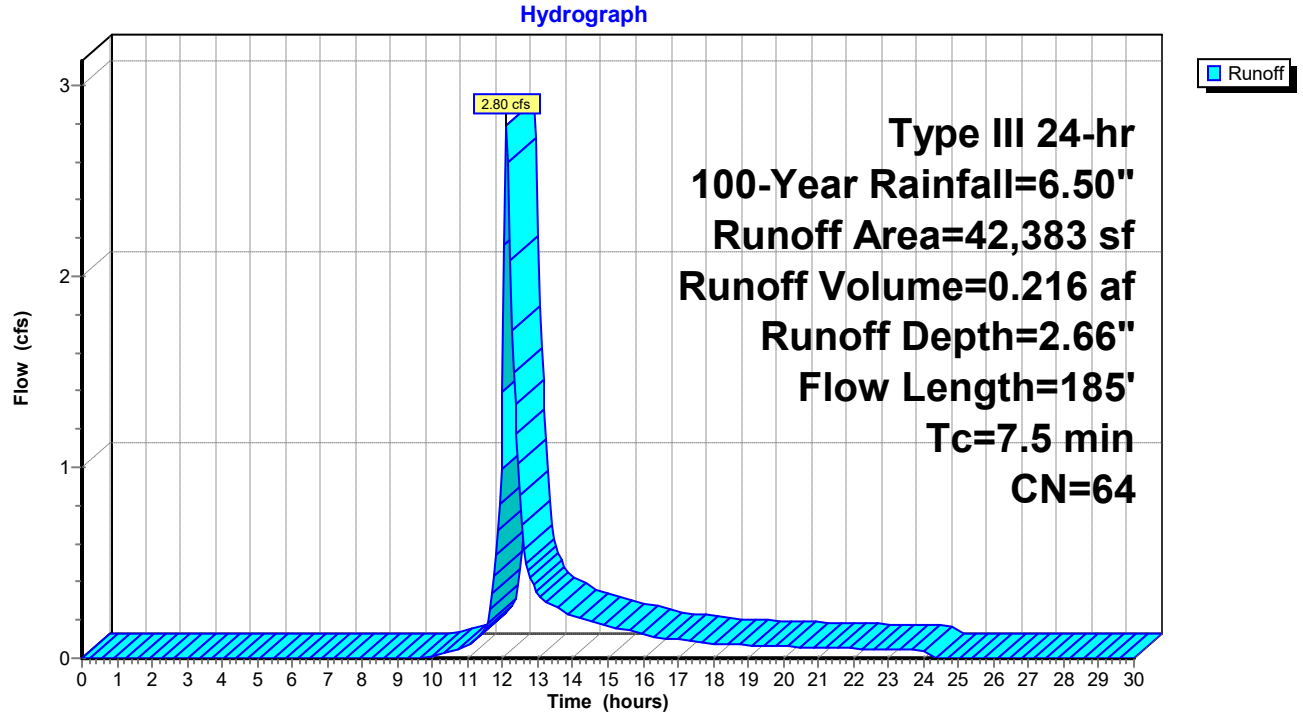
Runoff = 2.80 cfs @ 12.11 hrs, Volume= 0.216 af, Depth= 2.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.50"

Area (sf)	CN	Description
35,472	61	>75% Grass cover, Good, HSG B
2,601	55	Woods, Good, HSG B
4,310	98	Paved parking, HSG B
42,383	64	Weighted Average
38,073		89.83% Pervious Area
4,310		10.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.7	75	0.0320	0.19		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.3	50	0.0320	2.88		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.5	60	0.1670	2.04		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
7.5	185	Total			

Subcatchment P151: TO DP15



Summary for Subcatchment P161: TO DP16

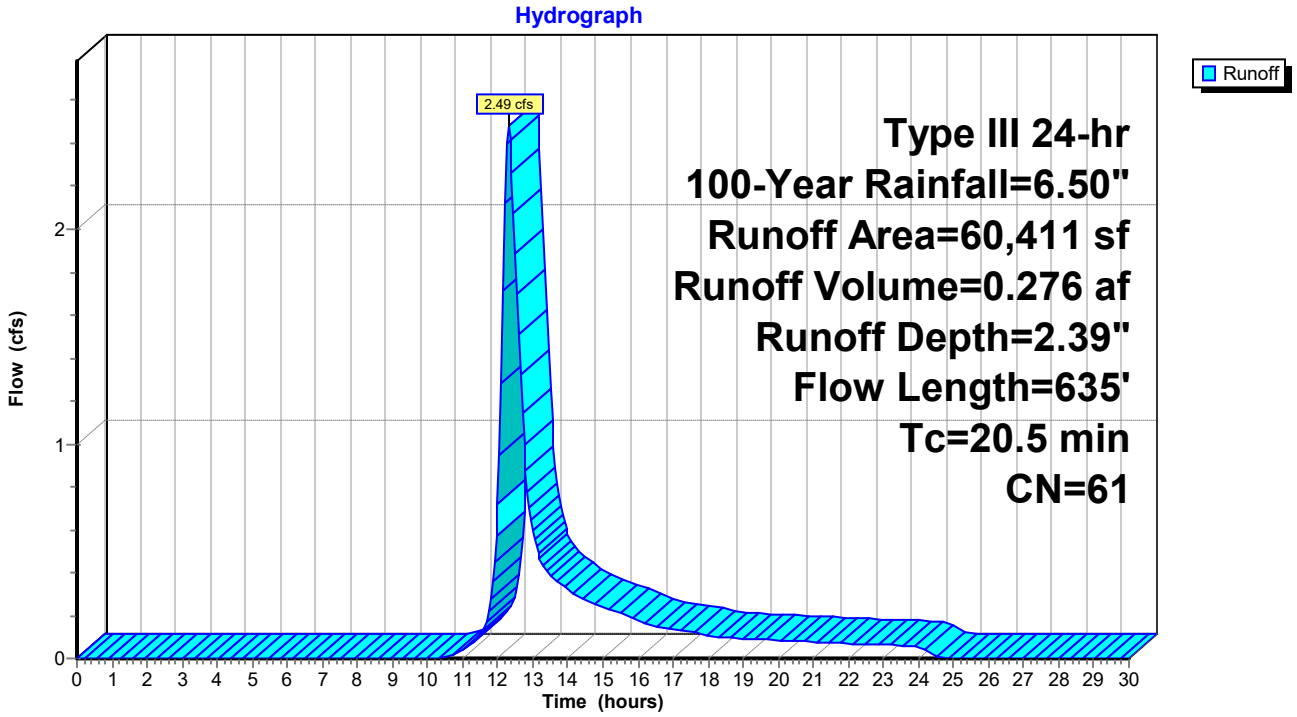
Runoff = 2.49 cfs @ 12.30 hrs, Volume= 0.276 af, Depth= 2.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.50"

Area (sf)	CN	Description
17,678	61	>75% Grass cover, Good, HSG B
36,188	55	Woods, Good, HSG B
6,545	98	Paved parking, HSG B
60,411	61	Weighted Average
53,866		89.17% Pervious Area
6,545		10.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.5	75	0.0470	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.00"
5.9	326	0.0340	0.92		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.0	5	0.0430	4.21		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.0	179	0.0890	1.49		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.1	50	0.1800	8.61		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
20.5	635	Total			

Subcatchment P161: TO DP16



Summary for Subcatchment P21: TO DP#2

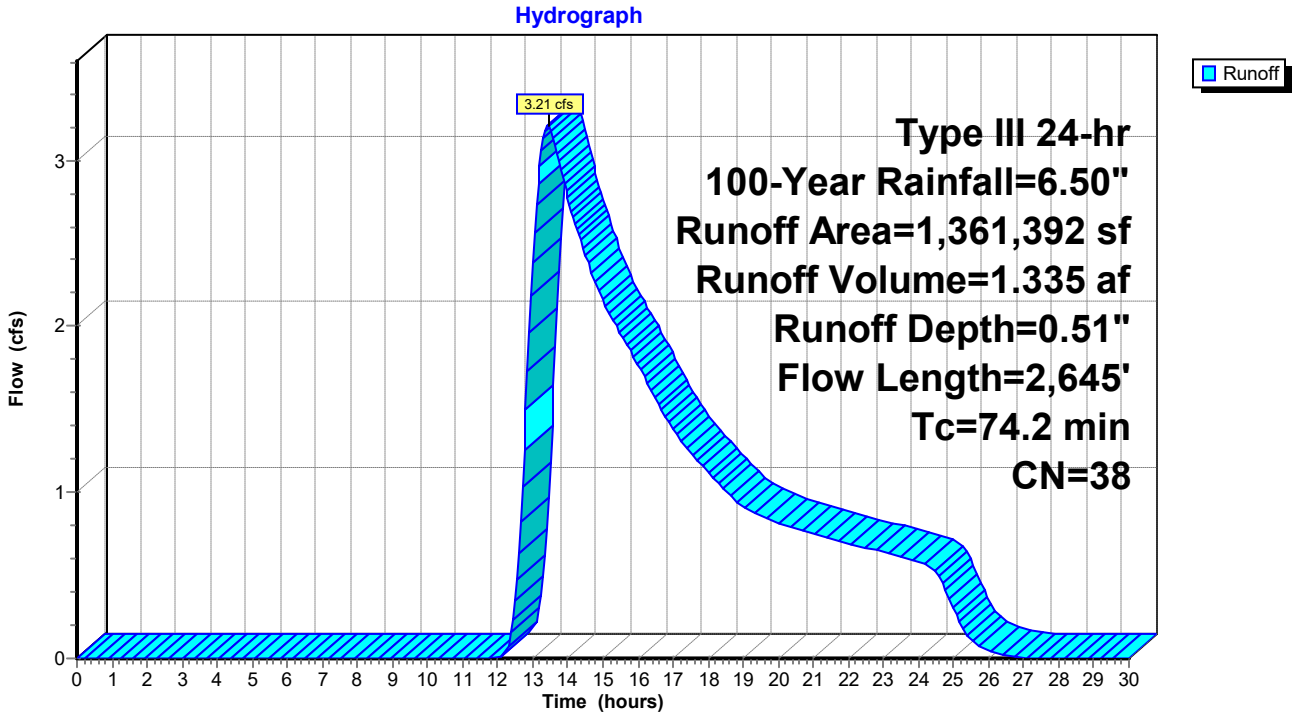
Runoff = 3.21 cfs @ 13.44 hrs, Volume= 1.335 af, Depth= 0.51"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.50"

Area (sf)	CN	Description
355,191	39	>75% Grass cover, Good, HSG A
803,291	30	Woods, Good, HSG A
19,791	76	Gravel roads, HSG A
9,527	98	Paved parking, HSG A
109,550	61	>75% Grass cover, Good, HSG B
40,873	70	Woods, Good, HSG C
23,169	55	Woods, Good, HSG B
1,361,392	38	Weighted Average
1,351,865		99.30% Pervious Area
9,527		0.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	75	0.1000	0.30		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.9	274	0.1000	5.09		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
6.7	400	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
14.5	475	0.0120	0.55		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
31.0	778	0.0070	0.42		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
16.9	643	0.0160	0.63		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
74.2	2,645	Total			

Subcatchment P21: TO DP#2



Summary for Subcatchment P21A: TO SB1

[49] Hint: Tc<2dt may require smaller dt

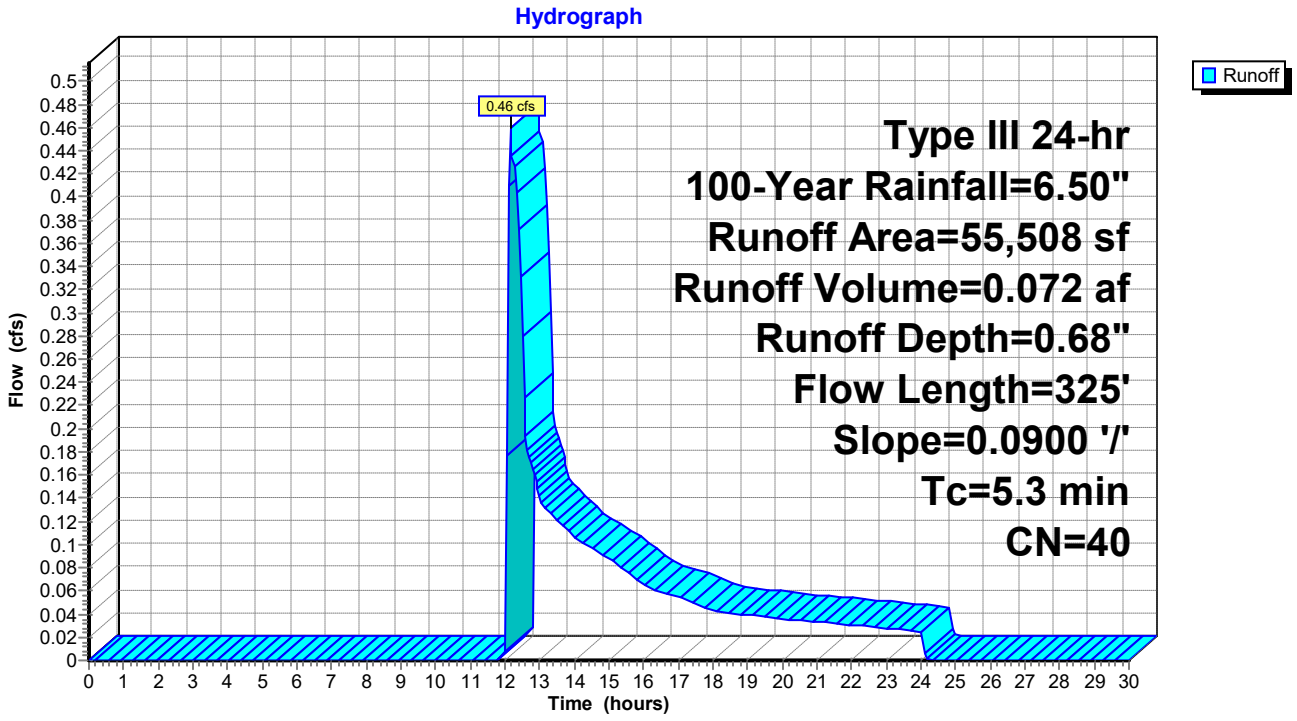
Runoff = 0.46 cfs @ 12.16 hrs, Volume= 0.072 af, Depth= 0.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.50"

Area (sf)	CN	Description
53,568	39	>75% Grass cover, Good, HSG A
1,940	76	Gravel roads, HSG A
55,508	40	Weighted Average
55,508		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	75	0.0900	0.28		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.9	250	0.0900	4.83		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
5.3	325	Total			

Subcatchment P21A: TO SB1



Summary for Subcatchment P21B: TO DCB-F

[49] Hint: Tc<2dt may require smaller dt

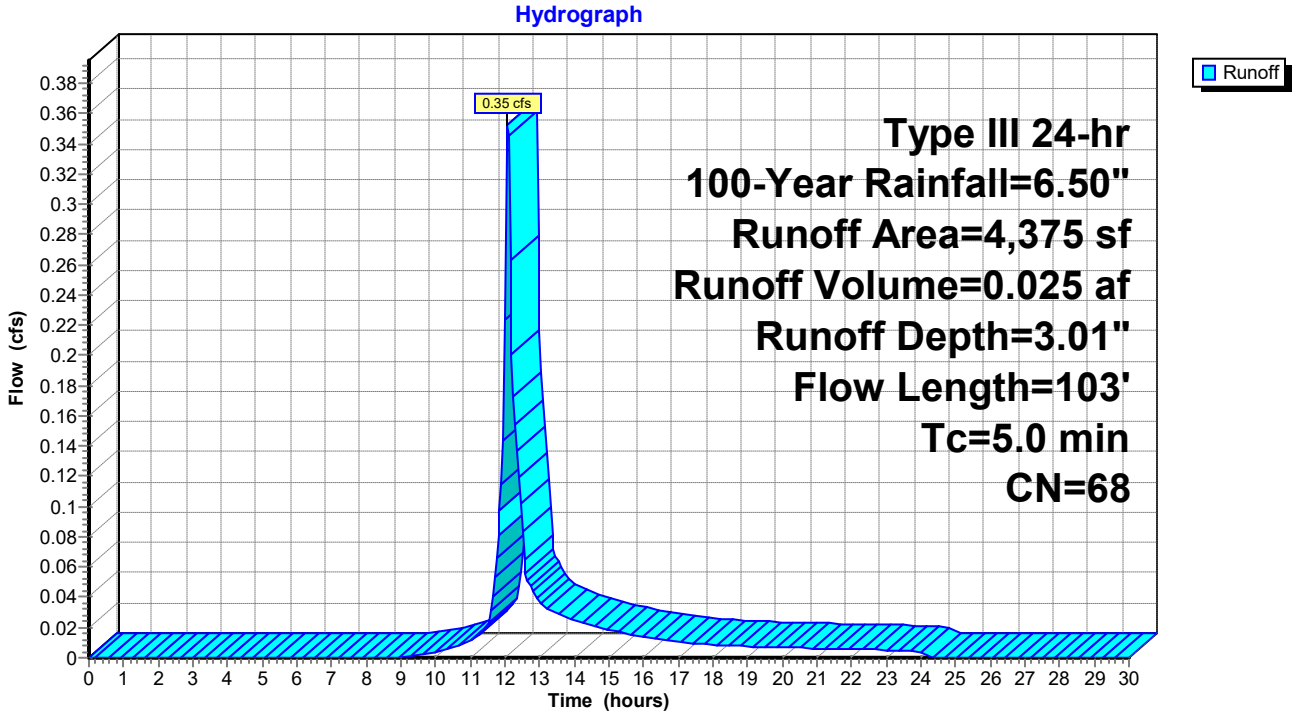
Runoff = 0.35 cfs @ 12.08 hrs, Volume= 0.025 af, Depth= 3.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.50"

Area (sf)	CN	Description
2,227	39	>75% Grass cover, Good, HSG A
2,148	98	Paved parking, HSG A
4,375	68	Weighted Average
2,227		50.90% Pervious Area
2,148		49.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	50	0.0100	0.88		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
0.2	19	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	34	0.0600	3.94		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.2	103	Total, Increased to minimum Tc = 5.0 min			

Subcatchment P21B: TO DCB-F



Summary for Subcatchment P22: TO BASIN#3

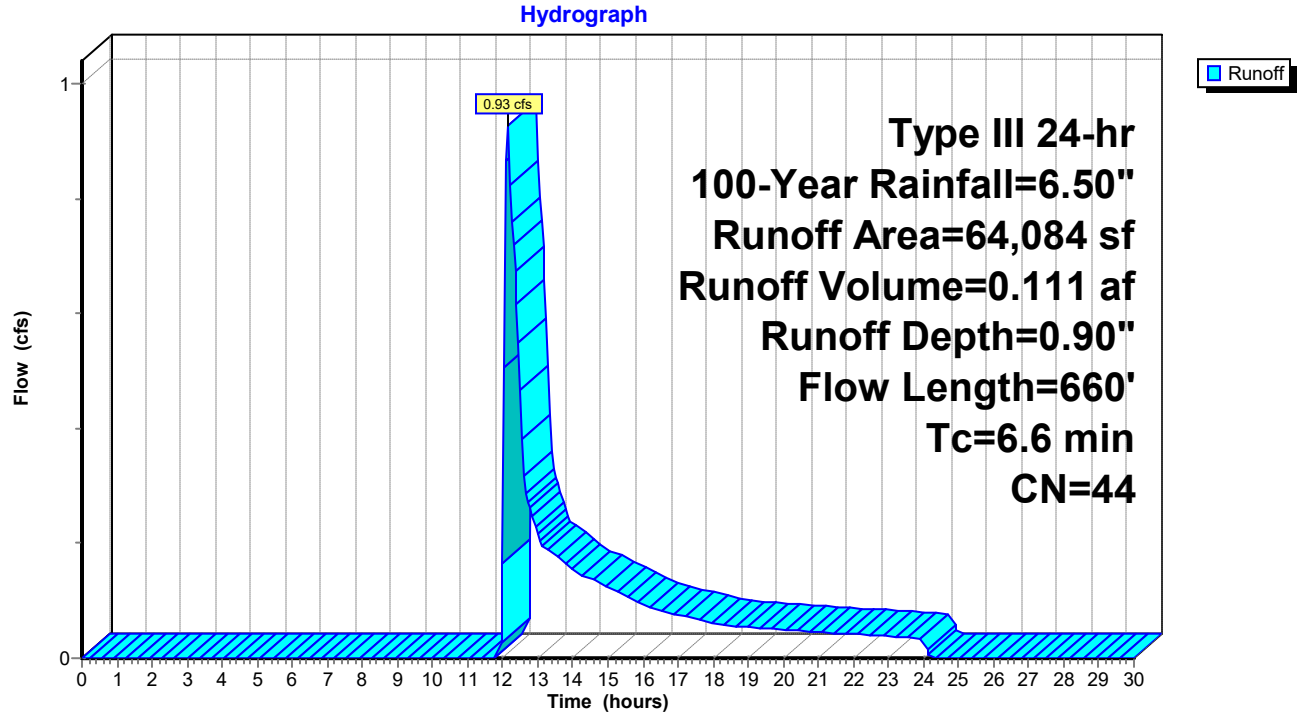
Runoff = 0.93 cfs @ 12.14 hrs, Volume= 0.111 af, Depth= 0.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.50"

Area (sf)	CN	Description
56,223	39	>75% Grass cover, Good, HSG A
7,861	76	Gravel roads, HSG A
64,084	44	Weighted Average
64,084		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	75	0.0800	0.27		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.4	110	0.0800	4.55		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.1	14	0.0200	2.28		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.5	461	0.1000	5.09		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
6.6	660	Total			

Subcatchment P22: TO BASIN#3



Summary for Subcatchment P23: TO BASIN #4

[49] Hint: Tc<2dt may require smaller dt

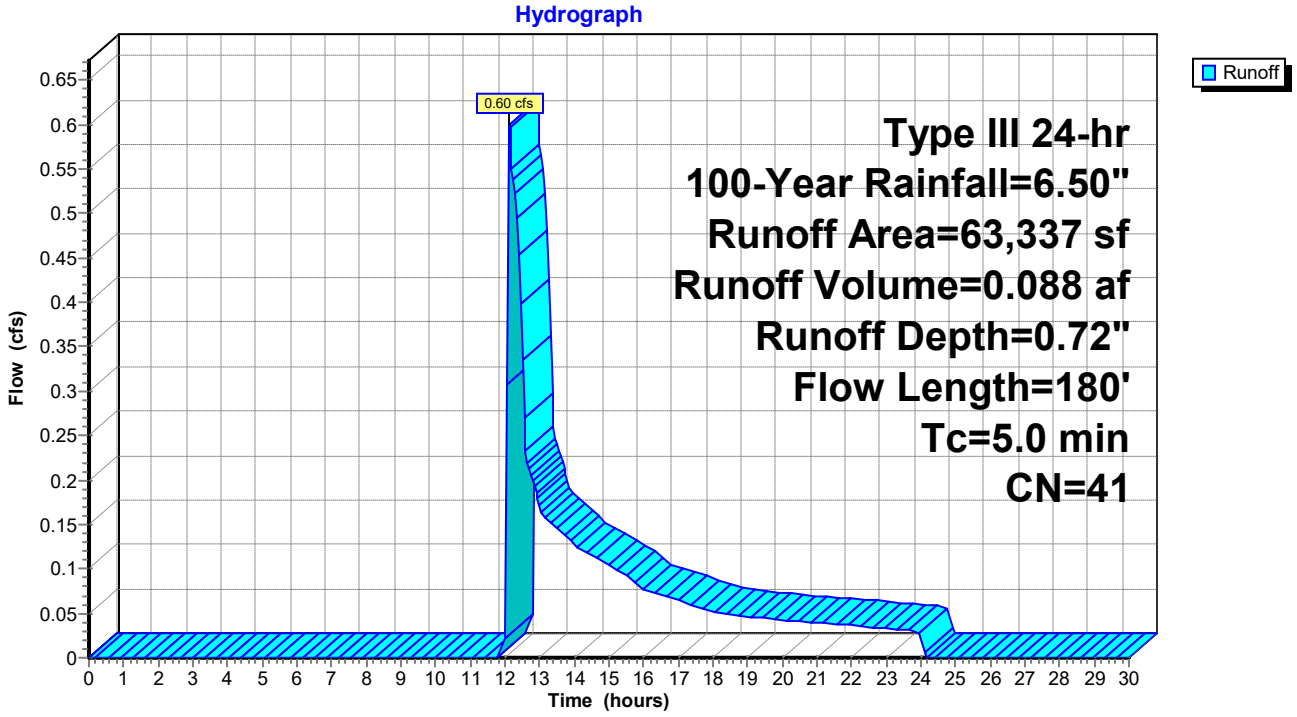
Runoff = 0.60 cfs @ 12.14 hrs, Volume= 0.088 af, Depth= 0.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.50"

Area (sf)	CN	Description
61,261	39	>75% Grass cover, Good, HSG A
2,076	98	Paved parking, HSG A
63,337	41	Weighted Average
61,261		96.72% Pervious Area
2,076		3.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	50	0.0200	1.16		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
0.0	26	0.3300	9.25		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.3	104	0.1000	5.09		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.0	180	Total, Increased to minimum Tc = 5.0 min			

Subcatchment P23: TO BASIN #4



Summary for Subcatchment P24: TO BASIN#5

[49] Hint: Tc<2dt may require smaller dt

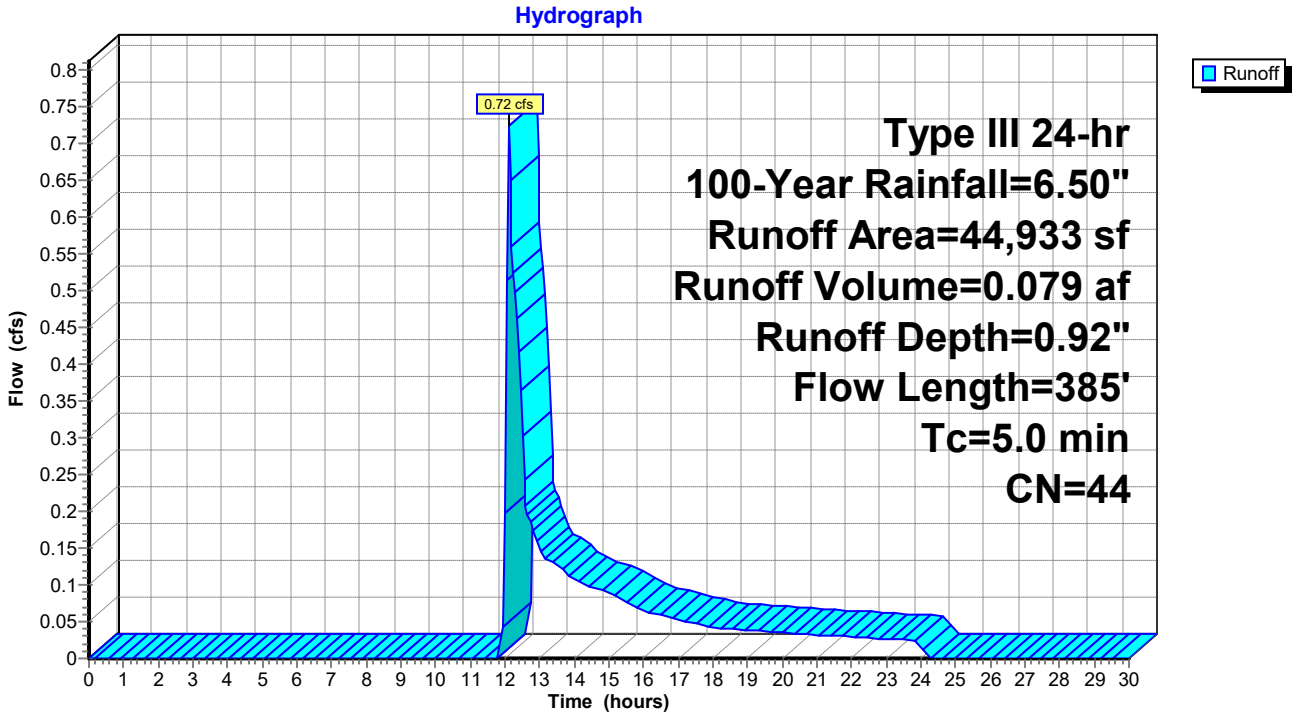
Runoff = 0.72 cfs @ 12.11 hrs, Volume= 0.079 af, Depth= 0.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.50"

Area (sf)	CN	Description
39,326	39	>75% Grass cover, Good, HSG A
2,324	76	Gravel roads, HSG A
1,422	98	Paved parking, HSG A
1,861	61	>75% Grass cover, Good, HSG B
44,933	44	Weighted Average
43,511		96.84% Pervious Area
1,422		3.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	50	0.0200	1.16		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
0.7	210	0.1000	5.09		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.1	14	0.0200	2.28		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.4	111	0.1000	5.09		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.9	385	Total, Increased to minimum Tc = 5.0 min			

Subcatchment P24: TO BASIN#5



Summary for Subcatchment P25: TO DCB-D

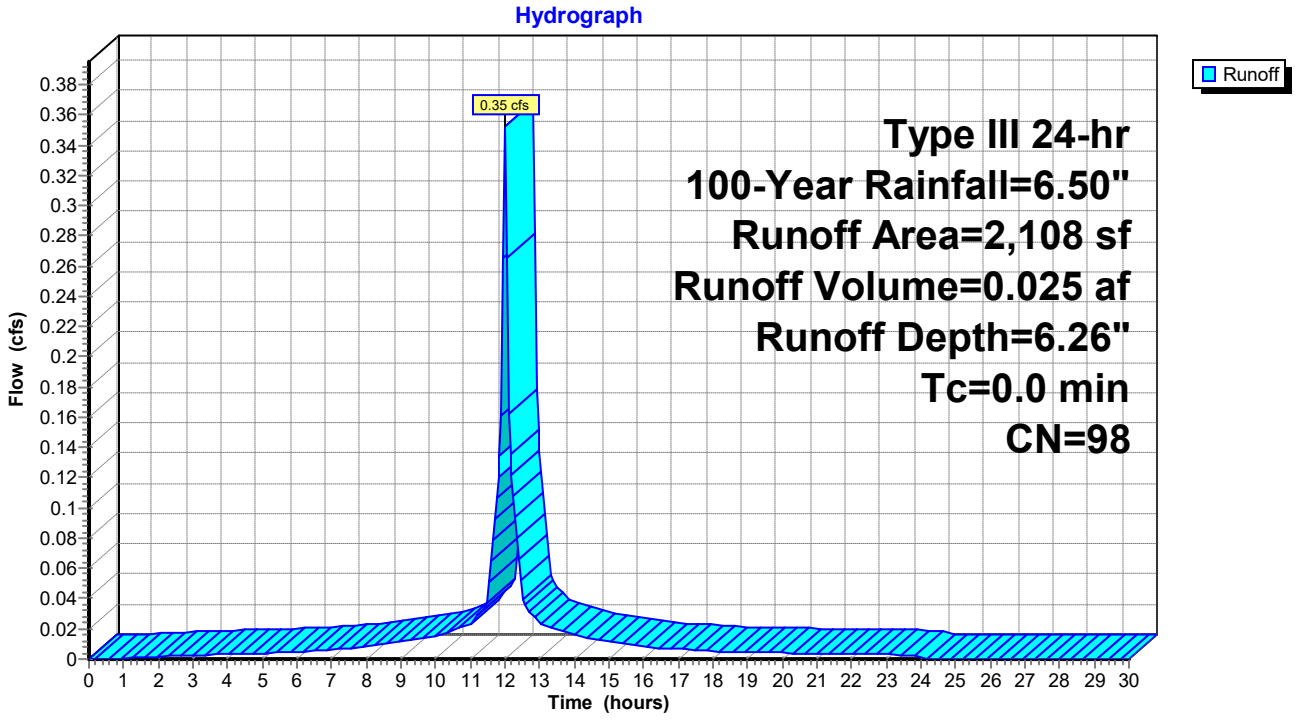
[46] Hint: Tc=0 (Instant runoff peak depends on dt)

Runoff = 0.35 cfs @ 12.00 hrs, Volume= 0.025 af, Depth= 6.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.50"

Area (sf)	CN	Description
2,108	98	Paved parking, HSG A
2,108		100.00% Impervious Area

Subcatchment P25: TO DCB-D



Summary for Subcatchment P26: TO DCB-A

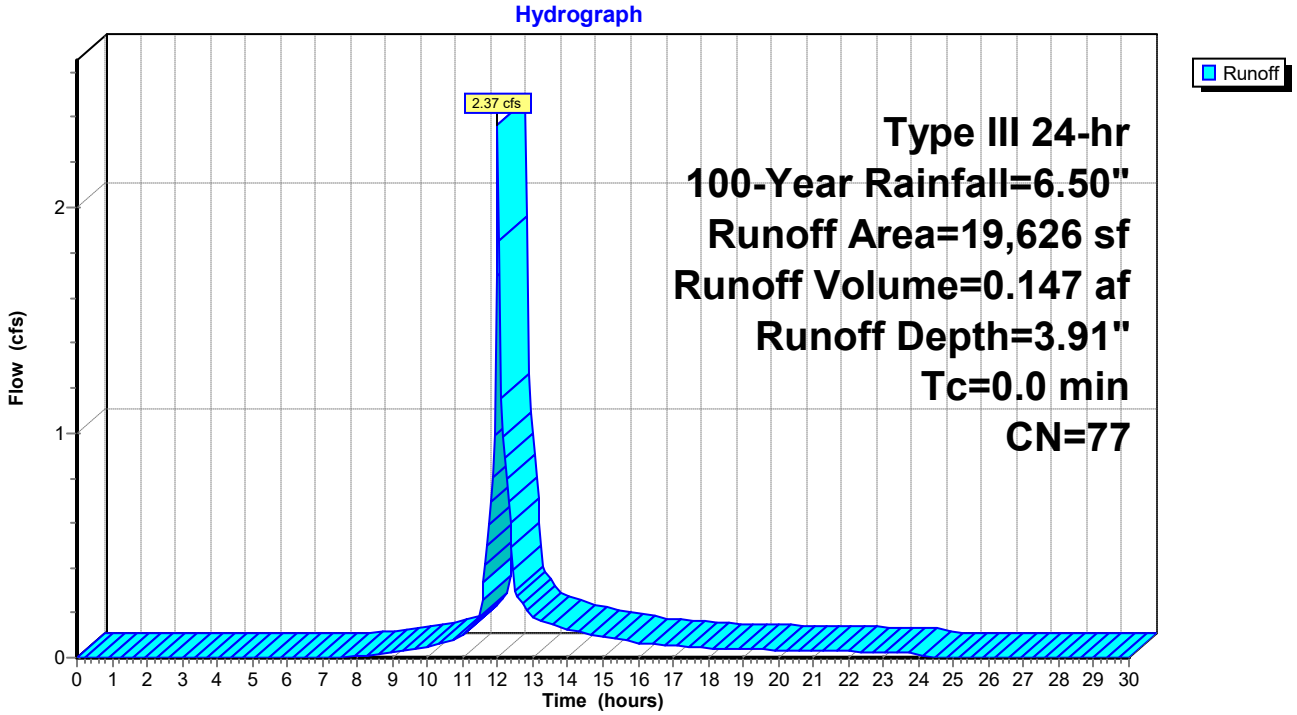
[46] Hint: Tc=0 (Instant runoff peak depends on dt)

Runoff = 2.37 cfs @ 12.00 hrs, Volume= 0.147 af, Depth= 3.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.50"

Area (sf)	CN	Description
8,453	98	Paved parking, HSG A
11,173	61	>75% Grass cover, Good, HSG B
19,626	77	Weighted Average
11,173		56.93% Pervious Area
8,453		43.07% Impervious Area

Subcatchment P26: TO DCB-A



Summary for Subcatchment P27: TO DCB-B

[49] Hint: Tc<2dt may require smaller dt

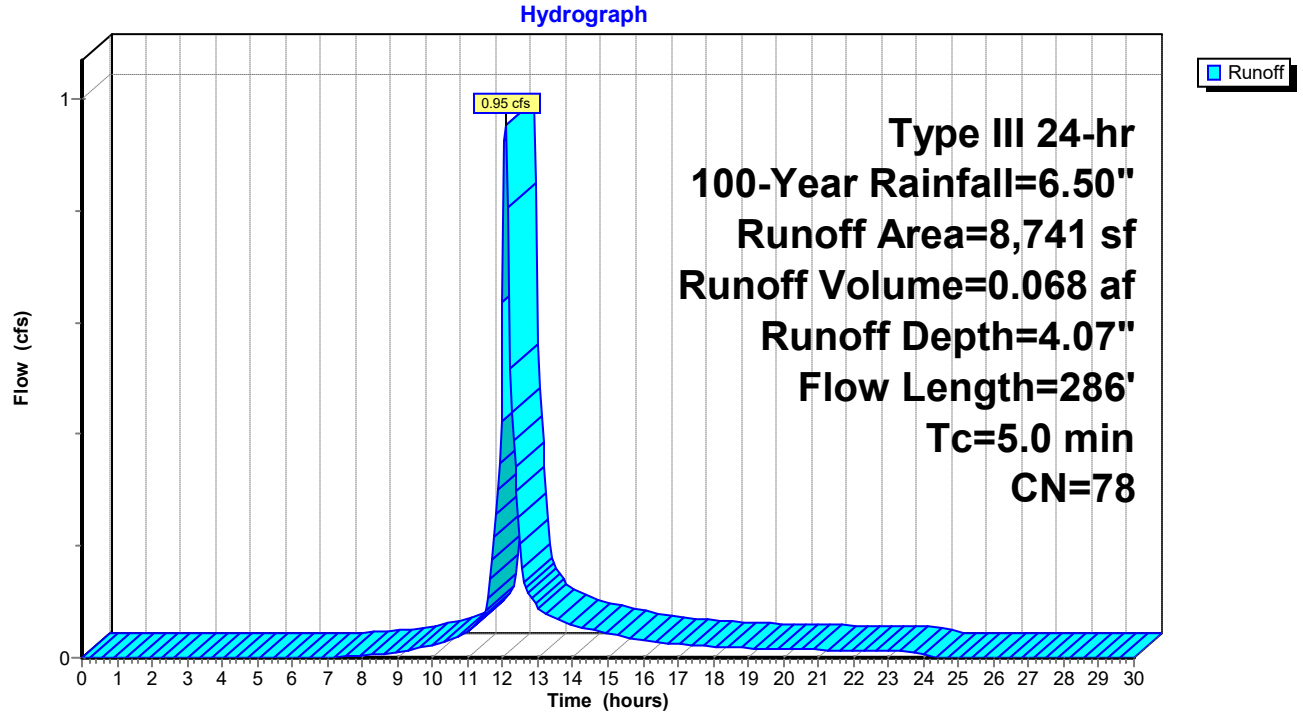
Runoff = 0.95 cfs @ 12.08 hrs, Volume= 0.068 af, Depth= 4.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.50"

Area (sf)	CN	Description
4,119	98	Paved parking, HSG A
4,622	61	>75% Grass cover, Good, HSG B
8,741	78	Weighted Average
4,622		52.88% Pervious Area
4,119		47.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	31	0.0200	1.05		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
0.4	19	0.0100	0.72		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
1.9	236	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.8	286	Total, Increased to minimum Tc = 5.0 min			

Subcatchment P27: TO DCB-B



Summary for Subcatchment P28: TO DCB-C

[49] Hint: Tc<2dt may require smaller dt

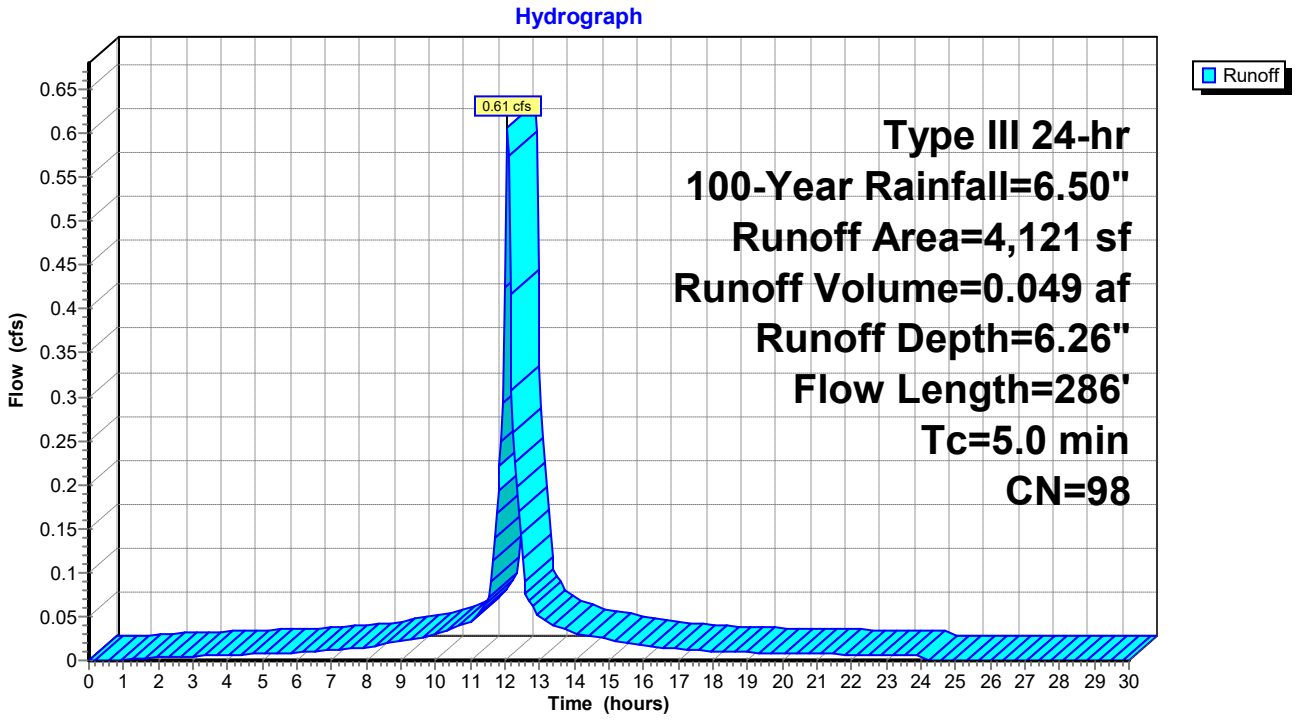
Runoff = 0.61 cfs @ 12.07 hrs, Volume= 0.049 af, Depth= 6.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.50"

Area (sf)	CN	Description
4,121	98	Paved parking, HSG A
4,121		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	31	0.0200	1.05		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
0.4	19	0.0100	0.72		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
1.9	236	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.8	286	Total, Increased to minimum Tc = 5.0 min			

Subcatchment P28: TO DCB-C



Summary for Subcatchment P29: TO DCB-D

[49] Hint: Tc<2dt may require smaller dt

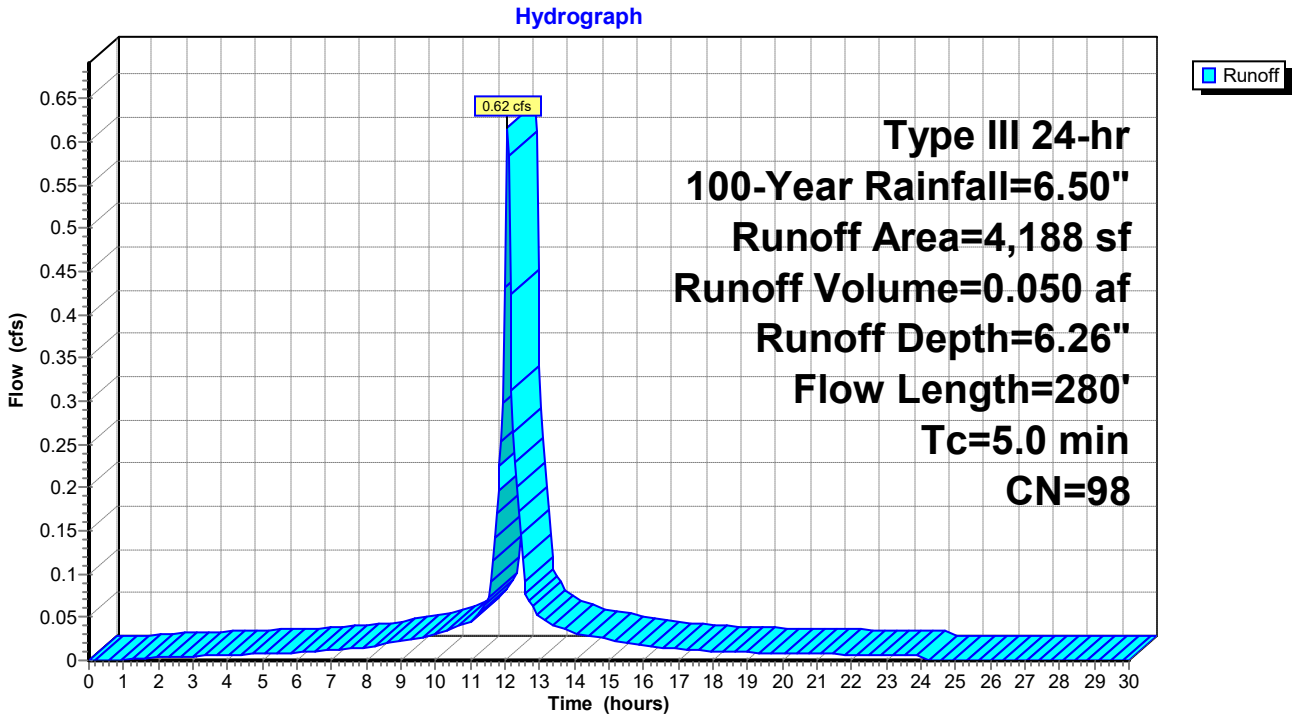
Runoff = 0.62 cfs @ 12.07 hrs, Volume= 0.050 af, Depth= 6.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.50"

Area (sf)	CN	Description
4,188	98	Paved parking, HSG A
4,188		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	21	0.0200	0.97		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
0.6	29	0.0100	0.79		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
1.9	230	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.9	280	Total, Increased to minimum Tc = 5.0 min			

Subcatchment P29: TO DCB-D



Summary for Subcatchment PS1: TO DCB#1

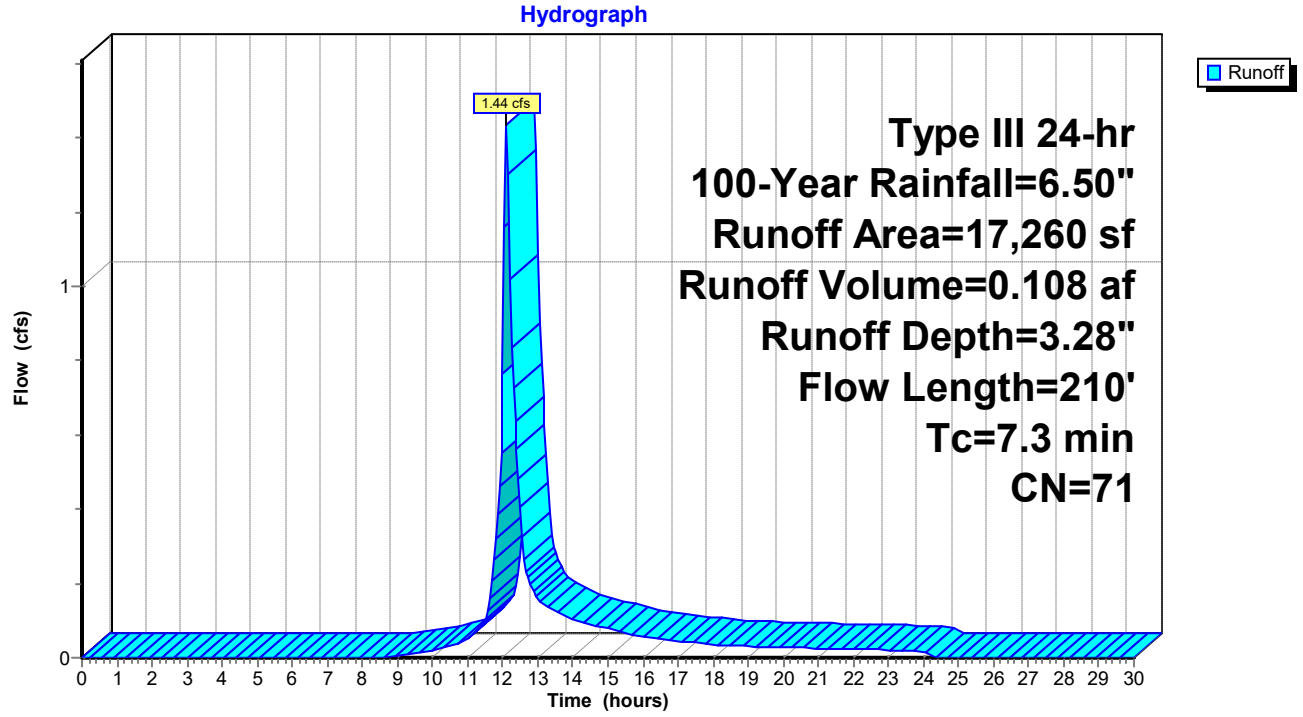
Runoff = 1.44 cfs @ 12.11 hrs, Volume= 0.108 af, Depth= 3.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.50"

Area (sf)	CN	Description
12,716	61	>75% Grass cover, Good, HSG B
4,544	98	Paved parking, HSG B
17,260	71	Weighted Average
12,716		73.67% Pervious Area
4,544		26.33% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	48	0.0200	0.14		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
1.2	27	0.3300	0.39		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.0	18	0.3300	9.25		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.5	117	0.0380	3.96		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
7.3	210	Total			

Subcatchment PS1: TO DCB#1



Summary for Subcatchment PS2: TO DCB#2

[49] Hint: Tc<2dt may require smaller dt

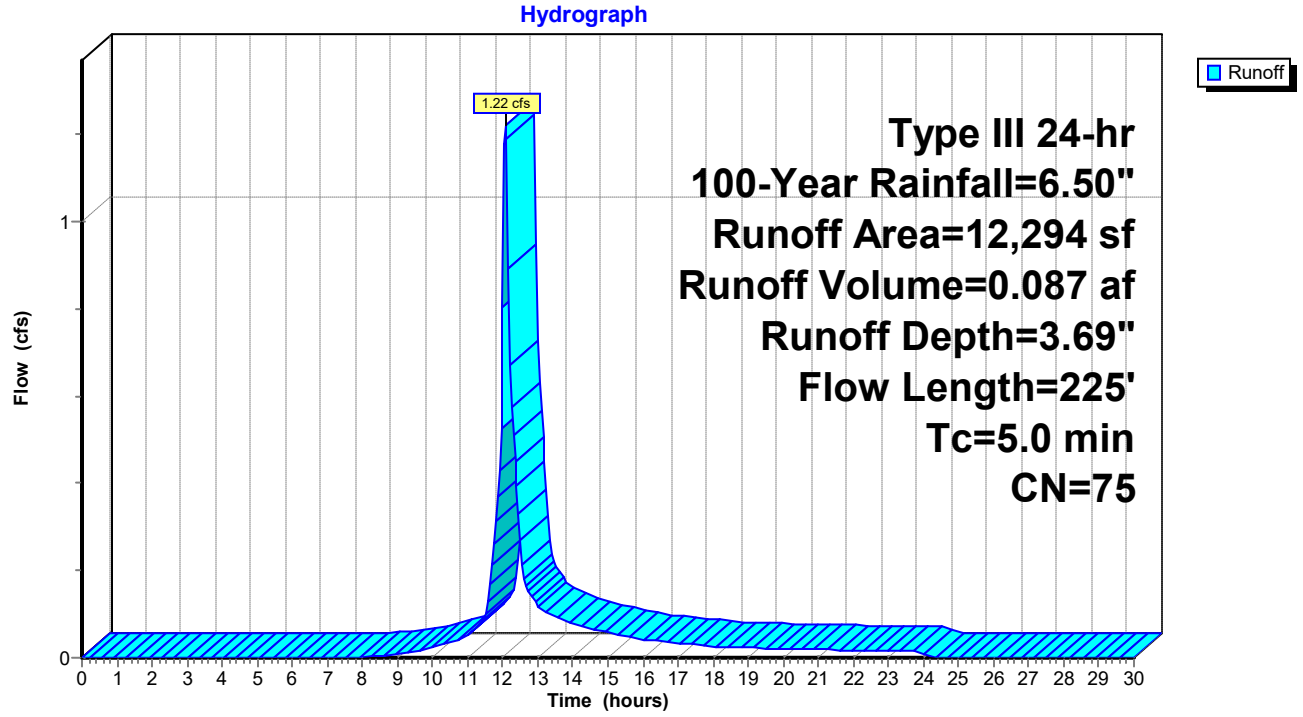
Runoff = 1.22 cfs @ 12.08 hrs, Volume= 0.087 af, Depth= 3.69"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.50"

Area (sf)	CN	Description
7,714	61	>75% Grass cover, Good, HSG B
4,580	98	Paved parking, HSG B
12,294	75	Weighted Average
7,714		62.75% Pervious Area
4,580		37.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.2	60	0.3300	0.46		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.5	85	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.3	80	0.0380	3.96		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
3.0	225	Total, Increased to minimum Tc = 5.0 min			

Subcatchment PS2: TO DCB#2



Summary for Reach 1R: (new Reach)

[62] Hint: Exceeded Reach OL1 OUTLET depth by 0.02' @ 25.05 hrs

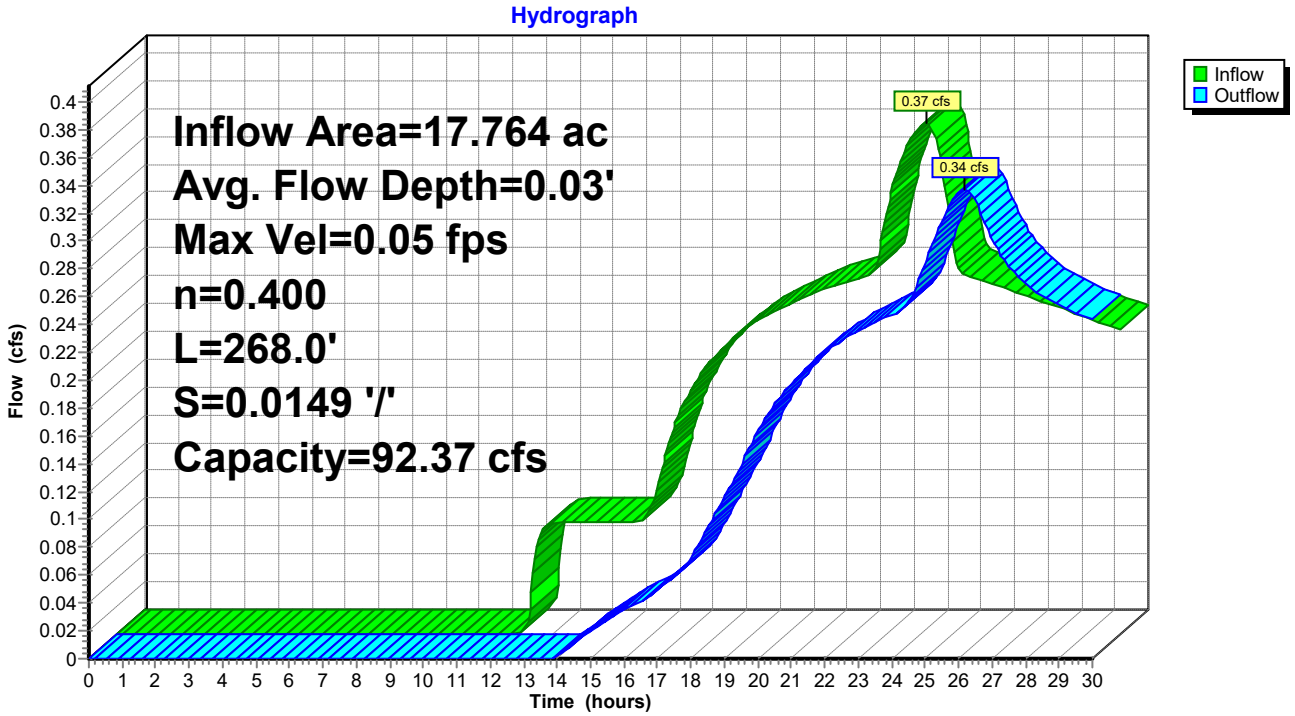
Inflow Area = 17.764 ac, 1.27% Impervious, Inflow Depth > 0.21" for 100-Year event
Inflow = 0.37 cfs @ 24.22 hrs, Volume= 0.306 af
Outflow = 0.34 cfs @ 26.17 hrs, Volume= 0.242 af, Atten= 8%, Lag= 117.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.05 fps, Min. Travel Time= 91.8 min
Avg. Velocity = 0.04 fps, Avg. Travel Time= 121.3 min

Peak Storage= 1,856 cf @ 24.64 hrs
Average Depth at Peak Storage= 0.03'
Bank-Full Depth= 1.00' Flow Area= 210.0 sf, Capacity= 92.37 cfs

200.00' x 1.00' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 220.00'
Length= 268.0' Slope= 0.0149 '/'
Inlet Invert= 872.00', Outlet Invert= 868.00'

Reach 1R: (new Reach)



Summary for Reach 2R: WOODS

[62] Hint: Exceeded Reach 15R OUTLET depth by 0.01' @ 19.15 hrs
[62] Hint: Exceeded Reach 16R OUTLET depth by 0.03' @ 29.95 hrs

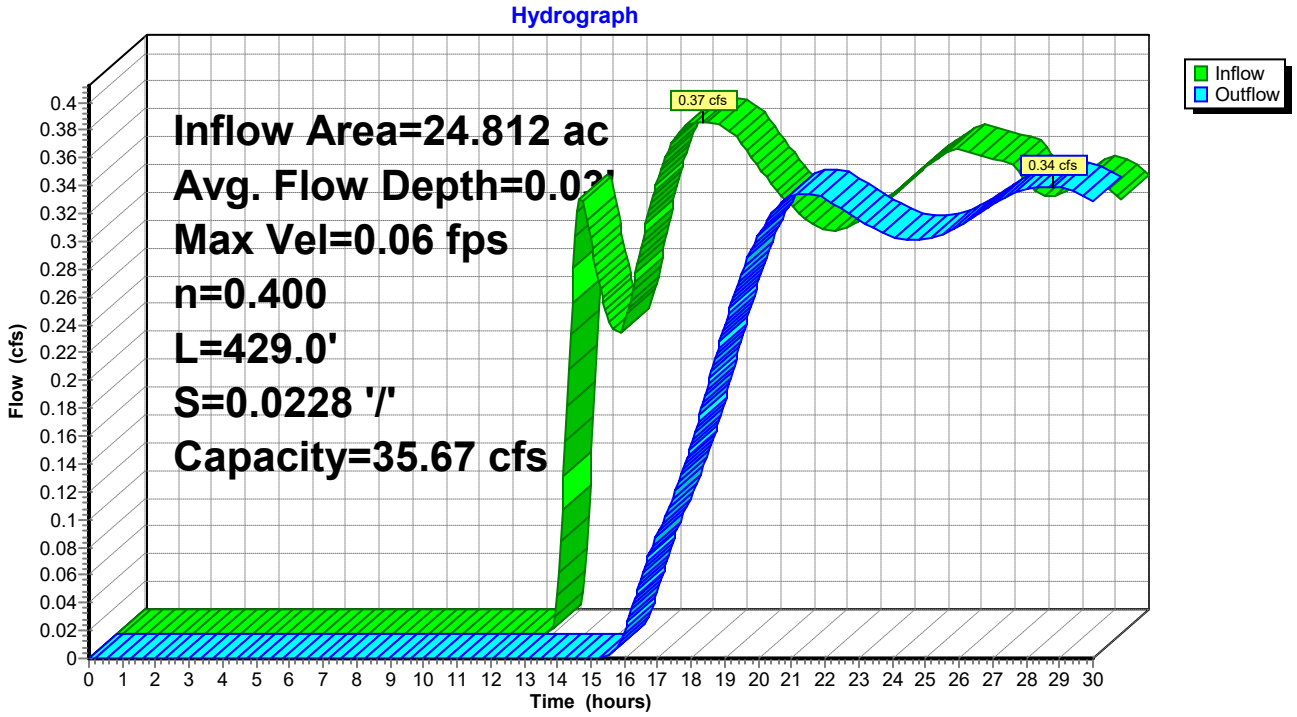
Inflow Area = 24.812 ac, 0.91% Impervious, Inflow Depth > 0.21" for 100-Year event
Inflow = 0.37 cfs @ 17.49 hrs, Volume= 0.438 af
Outflow = 0.34 cfs @ 28.83 hrs, Volume= 0.321 af, Atten= 8%, Lag= 680.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.06 fps, Min. Travel Time= 129.7 min
Avg. Velocity = 0.05 fps, Avg. Travel Time= 147.0 min

Peak Storage= 2,641 cf @ 26.67 hrs
Average Depth at Peak Storage= 0.03'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 35.67 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 429.0' Slope= 0.0228 '/'
Inlet Invert= 849.80', Outlet Invert= 840.00'

Reach 2R: WOODS



Summary for Reach 3R: GRASS

[79] Warning: Submerged Pond DB1 Primary device # 2 OUTLET by 0.01'

Inflow Area = 2.133 ac, 0.00% Impervious, Inflow Depth > 0.34" for 100-Year event
Inflow = 0.04 cfs @ 11.80 hrs, Volume= 0.061 af
Outflow = 0.04 cfs @ 13.65 hrs, Volume= 0.060 af, Atten= 0%, Lag= 111.0 min

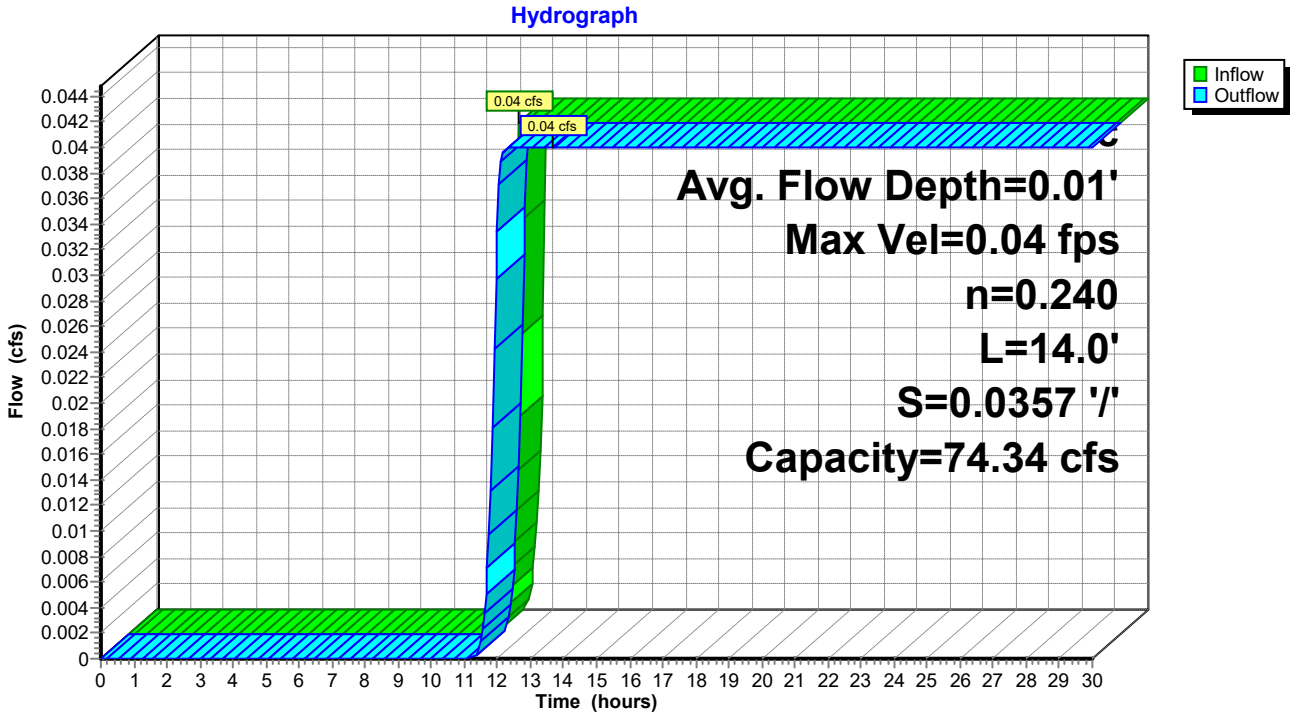
Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.04 fps, Min. Travel Time= 6.3 min
Avg. Velocity = 0.04 fps, Avg. Travel Time= 6.3 min

Peak Storage= 15 cf @ 13.55 hrs
Average Depth at Peak Storage= 0.01'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 74.34 cfs

200.00' x 0.50' deep channel, n= 0.240 Sheet flow over Dense Grass
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 14.0' Slope= 0.0357 '/'
Inlet Invert= 815.00', Outlet Invert= 814.50'

‡

Reach 3R: GRASS

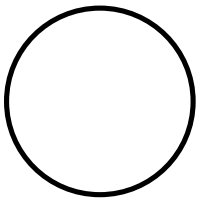


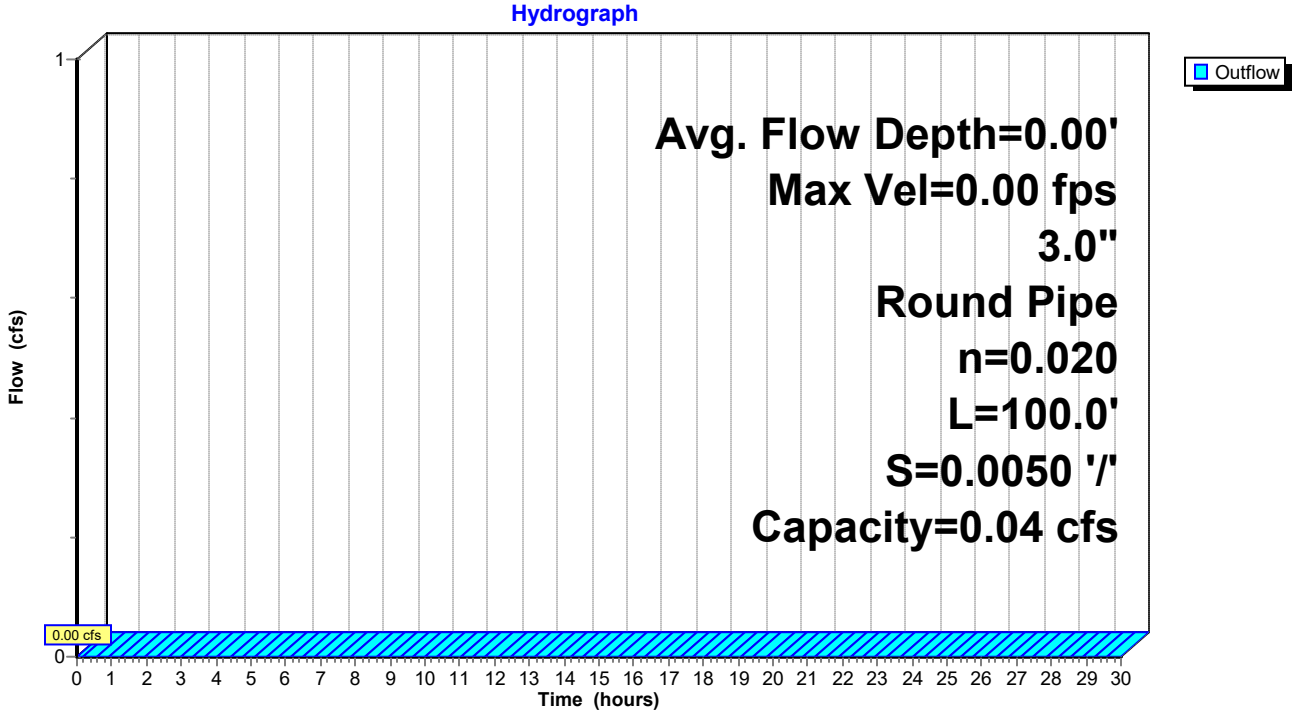
Summary for Reach 4R: (new Reach)

[43] Hint: Has no inflow (Outflow=Zero)

Bank-Full Depth= 0.25' Flow Area= 0.0 sf, Capacity= 0.04 cfs

3.0" Round Pipe
n= 0.020 Corrugated PE, corrugated interior
Length= 100.0' Slope= 0.0050 '/'
Inlet Invert= 0.00', Outlet Invert= -0.50'





Summary for Reach 5R: WOODS

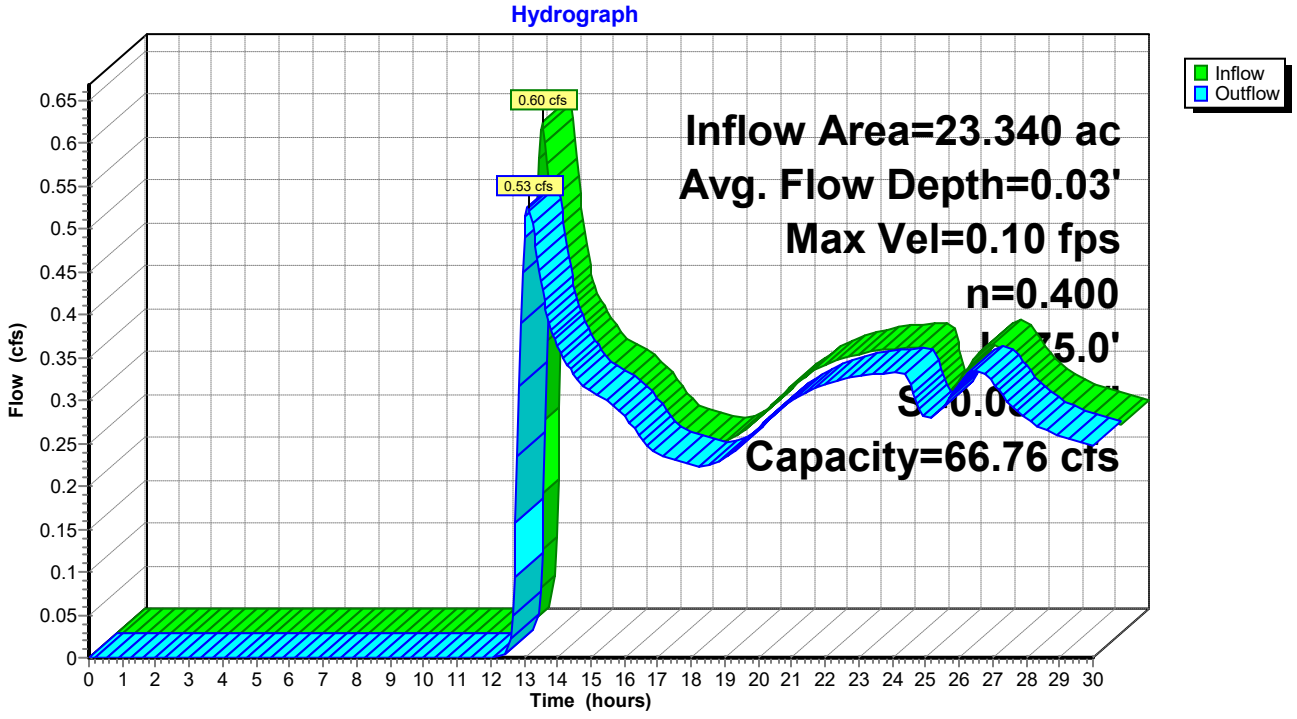
Inflow Area = 23.340 ac, 0.97% Impervious, Inflow Depth > 0.22" for 100-Year event
Inflow = 0.60 cfs @ 12.70 hrs, Volume= 0.436 af
Outflow = 0.53 cfs @ 13.12 hrs, Volume= 0.426 af, Atten= 12%, Lag= 25.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.10 fps, Min. Travel Time= 13.0 min
Avg. Velocity = 0.08 fps, Avg. Travel Time= 16.7 min

Peak Storage= 412 cf @ 12.90 hrs
Average Depth at Peak Storage= 0.03'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 66.76 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 75.0' Slope= 0.0800 '/'
Inlet Invert= 868.00', Outlet Invert= 862.00'

Reach 5R: WOODS



Summary for Reach 6R: WOODS

[61] Hint: Exceeded Reach 3R outlet invert by 0.01' @ 30.00 hrs

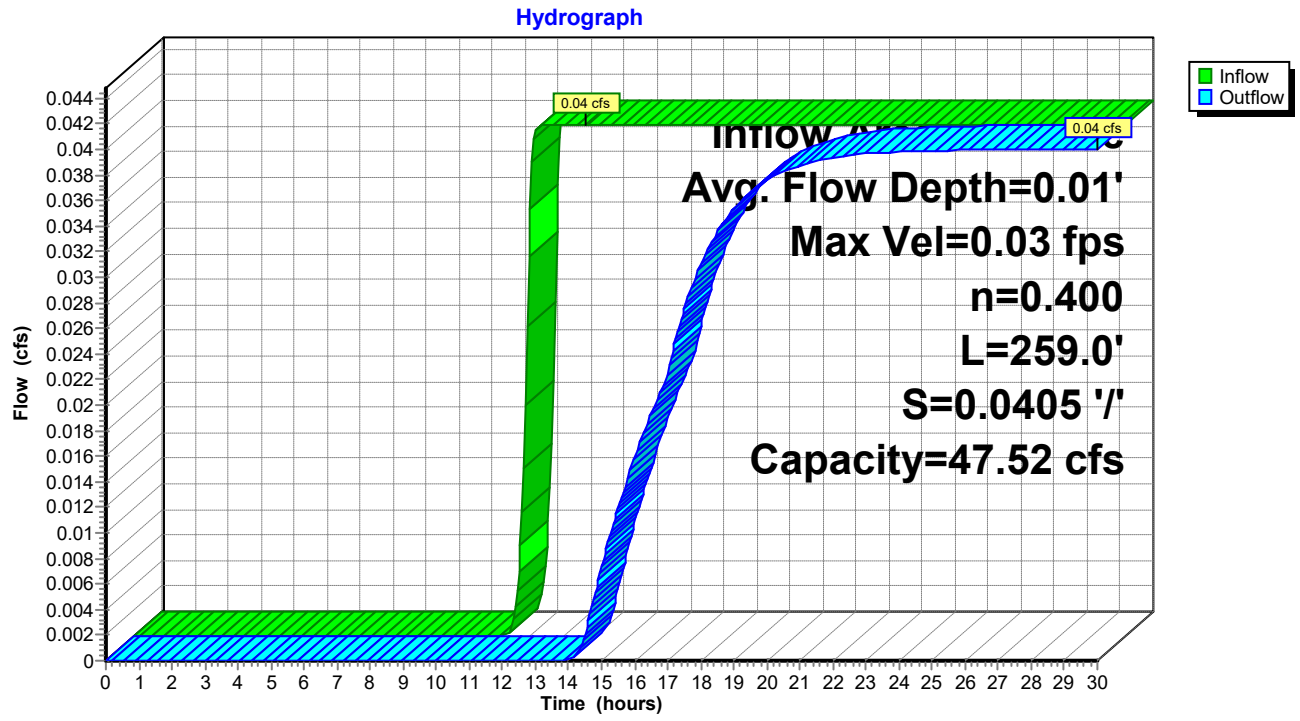
Inflow Area = 2.133 ac, 0.00% Impervious, Inflow Depth > 0.34" for 100-Year event
Inflow = 0.04 cfs @ 13.65 hrs, Volume= 0.060 af
Outflow = 0.04 cfs @ 30.00 hrs, Volume= 0.044 af, Atten= 0%, Lag= 981.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.03 fps, Min. Travel Time= 149.1 min
Avg. Velocity = 0.03 fps, Avg. Travel Time= 158.1 min

Peak Storage= 358 cf @ 30.00 hrs
Average Depth at Peak Storage= 0.01'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 47.52 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 259.0' Slope= 0.0405 '/'
Inlet Invert= 814.50', Outlet Invert= 804.00'

Reach 6R: WOODS



Summary for Reach 7R: GRASS

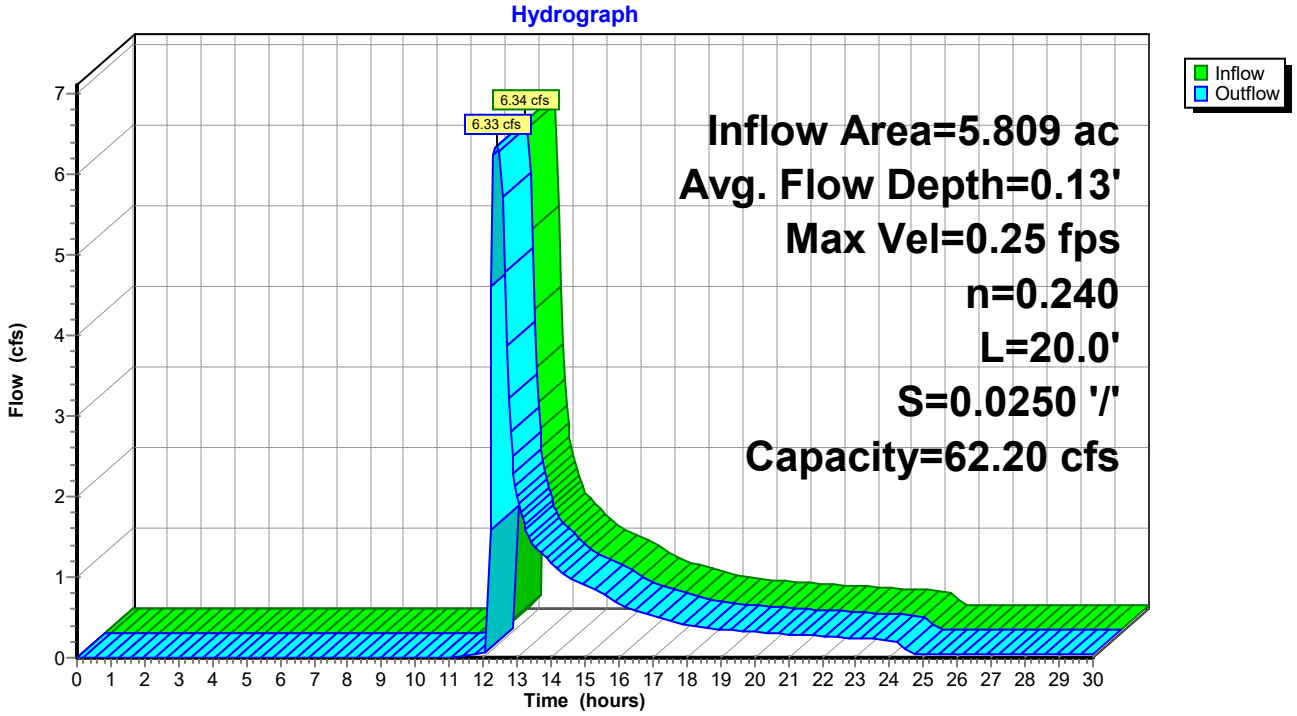
Inflow Area = 5.809 ac, 0.00% Impervious, Inflow Depth > 1.72" for 100-Year event
Inflow = 6.34 cfs @ 12.38 hrs, Volume= 0.831 af
Outflow = 6.33 cfs @ 12.41 hrs, Volume= 0.831 af, Atten= 0%, Lag= 2.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.25 fps, Min. Travel Time= 1.3 min
Avg. Velocity = 0.07 fps, Avg. Travel Time= 4.5 min

Peak Storage= 513 cf @ 12.39 hrs
Average Depth at Peak Storage= 0.13'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 62.20 cfs

200.00' x 0.50' deep channel, n= 0.240 Sheet flow over Dense Grass
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 20.0' Slope= 0.0250 '/'
Inlet Invert= 805.50', Outlet Invert= 805.00'

Reach 7R: GRASS



Summary for Reach 8R: WOODS

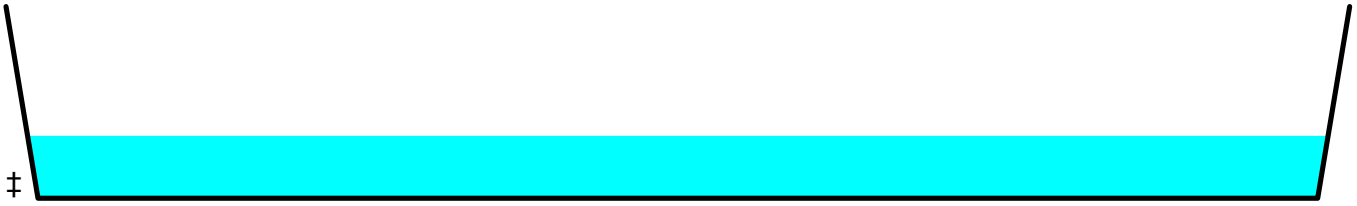
[62] Hint: Exceeded Reach 7R OUTLET depth by 0.09' @ 12.90 hrs

Inflow Area = 5.809 ac, 0.00% Impervious, Inflow Depth > 1.72" for 100-Year event
Inflow = 6.33 cfs @ 12.41 hrs, Volume= 0.831 af
Outflow = 3.43 cfs @ 13.33 hrs, Volume= 0.816 af, Atten= 46%, Lag= 54.8 min

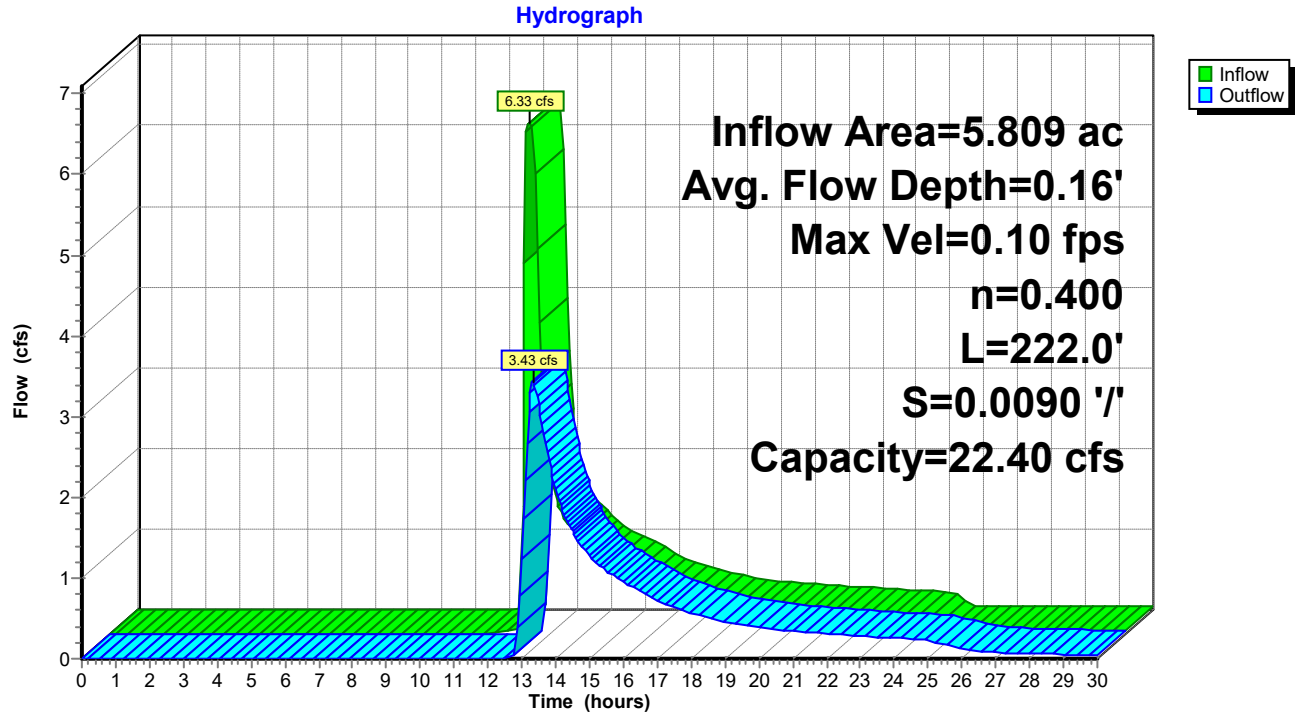
Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.10 fps, Min. Travel Time= 35.4 min
Avg. Velocity = 0.04 fps, Avg. Travel Time= 88.4 min

Peak Storage= 7,289 cf @ 12.74 hrs
Average Depth at Peak Storage= 0.16'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 22.40 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 222.0' Slope= 0.0090 '/'
Inlet Invert= 805.00', Outlet Invert= 803.00'



Reach 8R: WOODS



Summary for Reach 9R: WOODS-2

[62] Hint: Exceeded Reach 10R OUTLET depth by 0.02' @ 17.30 hrs

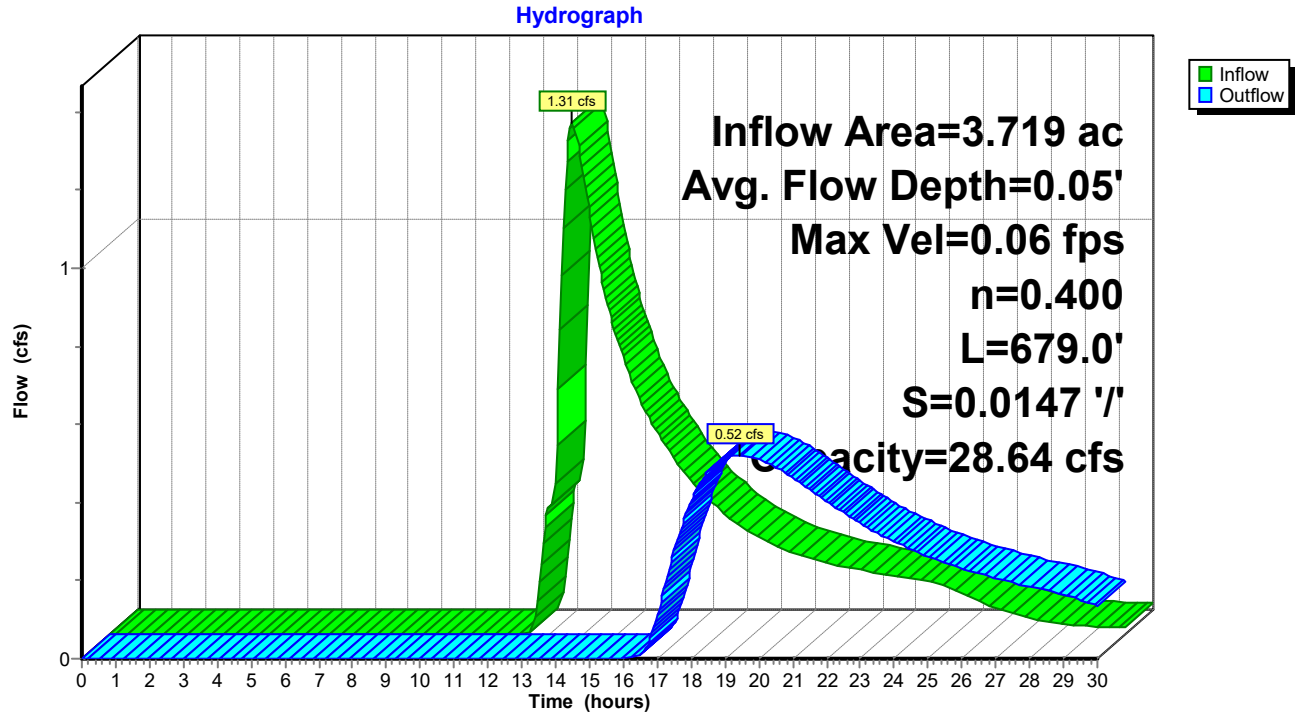
Inflow Area = 3.719 ac, 16.80% Impervious, Inflow Depth > 1.34" for 100-Year event
Inflow = 1.31 cfs @ 13.66 hrs, Volume= 0.416 af
Outflow = 0.52 cfs @ 19.43 hrs, Volume= 0.345 af, Atten= 60%, Lag= 346.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.06 fps, Min. Travel Time= 197.4 min
Avg. Velocity = 0.04 fps, Avg. Travel Time= 276.2 min

Peak Storage= 6,183 cf @ 16.14 hrs
Average Depth at Peak Storage= 0.05'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 28.64 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 679.0' Slope= 0.0147 '/'
Inlet Invert= 858.00', Outlet Invert= 848.00'

Reach 9R: WOODS-2



Summary for Reach 10R: WOODS-1

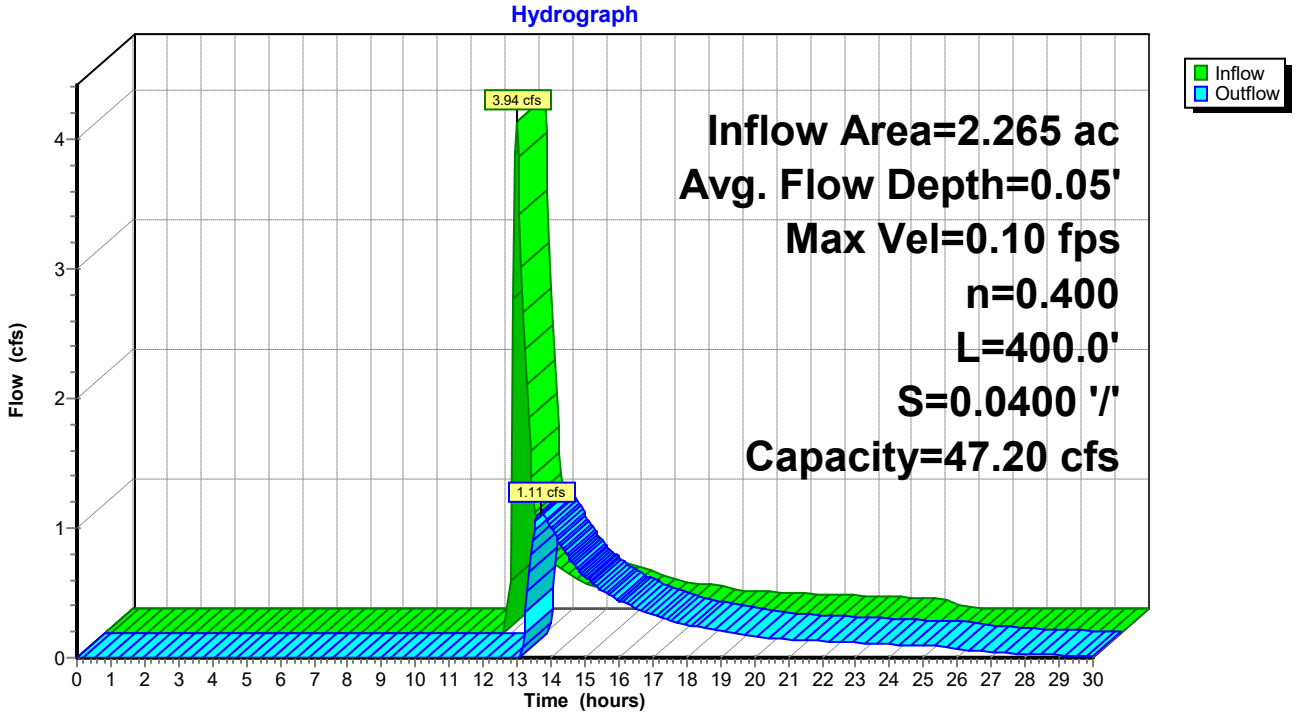
Inflow Area = 2.265 ac, 25.48% Impervious, Inflow Depth = 1.78" for 100-Year event
Inflow = 3.94 cfs @ 12.15 hrs, Volume= 0.335 af
Outflow = 1.11 cfs @ 13.69 hrs, Volume= 0.328 af, Atten= 72%, Lag= 92.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.10 fps, Min. Travel Time= 63.6 min
Avg. Velocity = 0.05 fps, Avg. Travel Time= 138.3 min

Peak Storage= 4,252 cf @ 12.63 hrs
Average Depth at Peak Storage= 0.05'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 47.20 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 400.0' Slope= 0.0400 '/'
Inlet Invert= 874.00', Outlet Invert= 858.00'

Reach 10R: WOODS-1



Summary for Reach 11R: WOODS-3

[62] Hint: Exceeded Reach 9R OUTLET depth by 0.03' @ 26.95 hrs
[62] Hint: Exceeded Reach 17R OUTLET depth by 0.05' @ 24.10 hrs

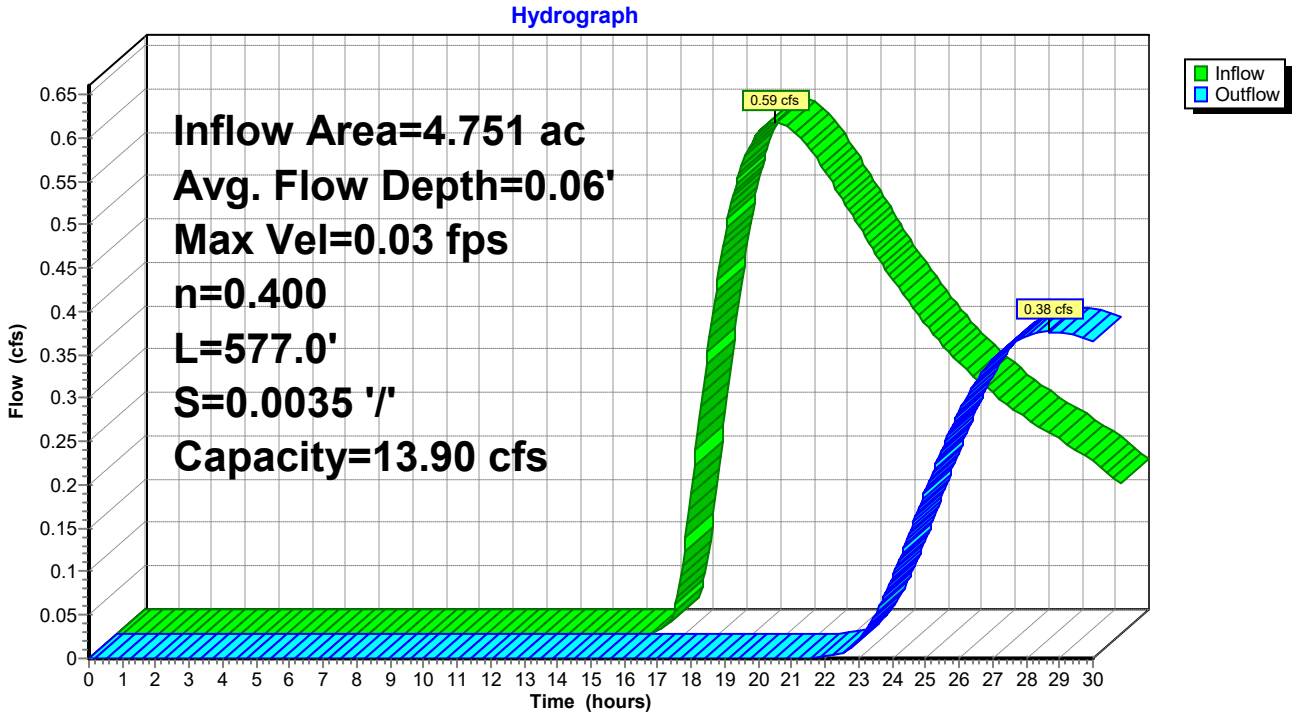
Inflow Area = 4.751 ac, 13.84% Impervious, Inflow Depth > 1.02" for 100-Year event
Inflow = 0.59 cfs @ 19.65 hrs, Volume= 0.403 af
Outflow = 0.38 cfs @ 28.69 hrs, Volume= 0.155 af, Atten= 36%, Lag= 542.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.03 fps, Min. Travel Time= 295.0 min
Avg. Velocity = 0.03 fps, Avg. Travel Time= 381.4 min

Peak Storage= 6,669 cf @ 23.78 hrs
Average Depth at Peak Storage= 0.06'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 13.90 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 577.0' Slope= 0.0035 '/'
Inlet Invert= 848.00', Outlet Invert= 846.00'

Reach 11R: WOODS-3



Summary for Reach 12R: GRASS

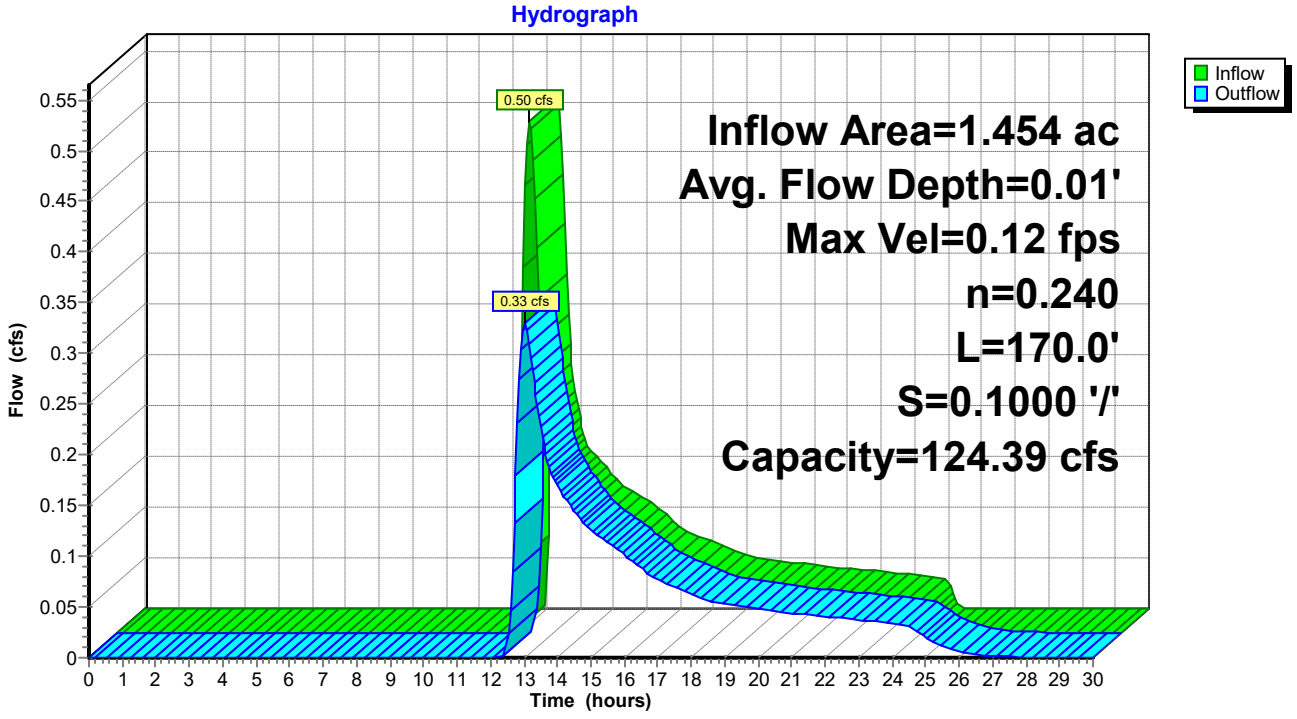
Inflow Area = 1.454 ac, 3.28% Impervious, Inflow Depth = 0.72" for 100-Year event
Inflow = 0.50 cfs @ 12.34 hrs, Volume= 0.088 af
Outflow = 0.33 cfs @ 13.01 hrs, Volume= 0.088 af, Atten= 35%, Lag= 40.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.12 fps, Min. Travel Time= 24.4 min
Avg. Velocity = 0.06 fps, Avg. Travel Time= 44.0 min

Peak Storage= 484 cf @ 12.61 hrs
Average Depth at Peak Storage= 0.01'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 124.39 cfs

200.00' x 0.50' deep channel, n= 0.240 Sheet flow over Dense Grass
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 170.0' Slope= 0.1000 '/'
Inlet Invert= 883.00', Outlet Invert= 866.00'

Reach 12R: GRASS



Summary for Reach 13R: WOODS-4

[61] Hint: Exceeded Reach 11R outlet invert by 0.03' @ 30.00 hrs

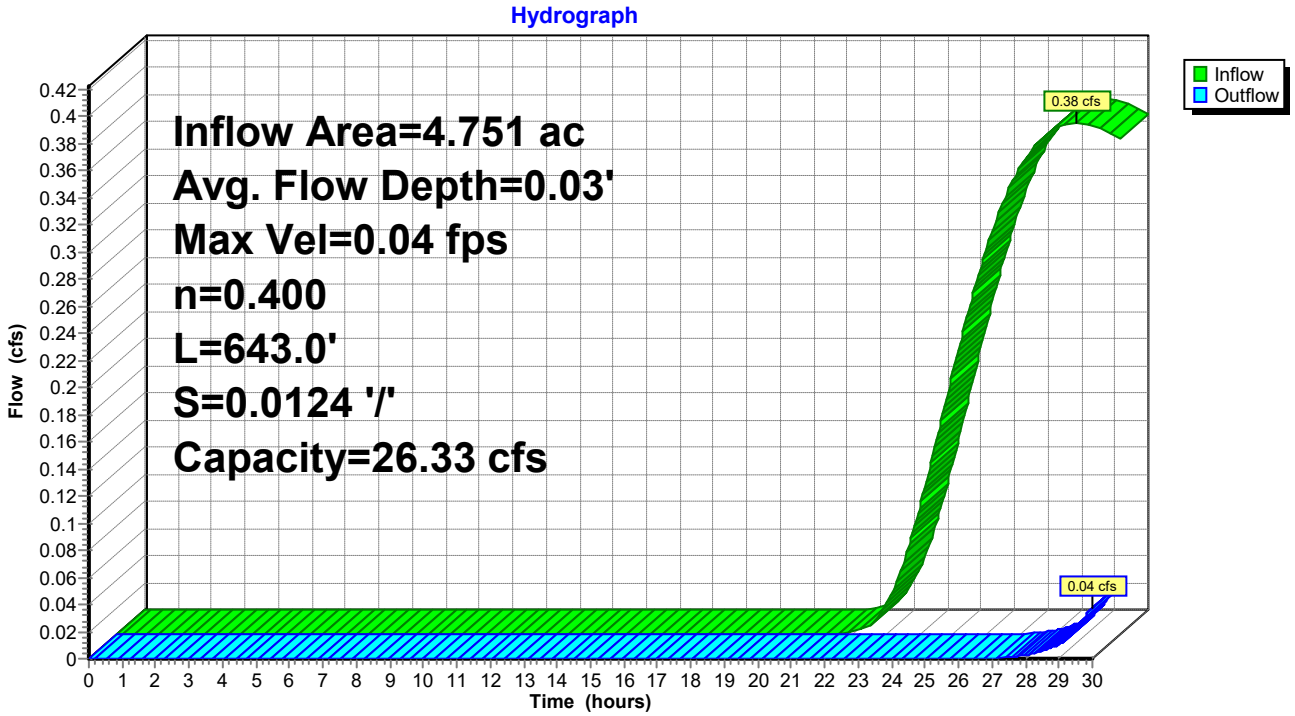
Inflow Area = 4.751 ac, 13.84% Impervious, Inflow Depth > 0.39" for 100-Year event
Inflow = 0.38 cfs @ 28.69 hrs, Volume= 0.155 af
Outflow = 0.04 cfs @ 30.00 hrs, Volume= 0.003 af, Atten= 90%, Lag= 78.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.04 fps, Min. Travel Time= 253.4 min
Avg. Velocity = 0.02 fps, Avg. Travel Time= 468.5 min

Peak Storage= 4,185 cf @ 30.00 hrs
Average Depth at Peak Storage= 0.03'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 26.33 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 643.0' Slope= 0.0124 '/'
Inlet Invert= 846.00', Outlet Invert= 838.00'

Reach 13R: WOODS-4



Summary for Reach 14R: WOODS

[79] Warning: Submerged Pond DB5 Primary device # 2 OUTLET by 0.02'

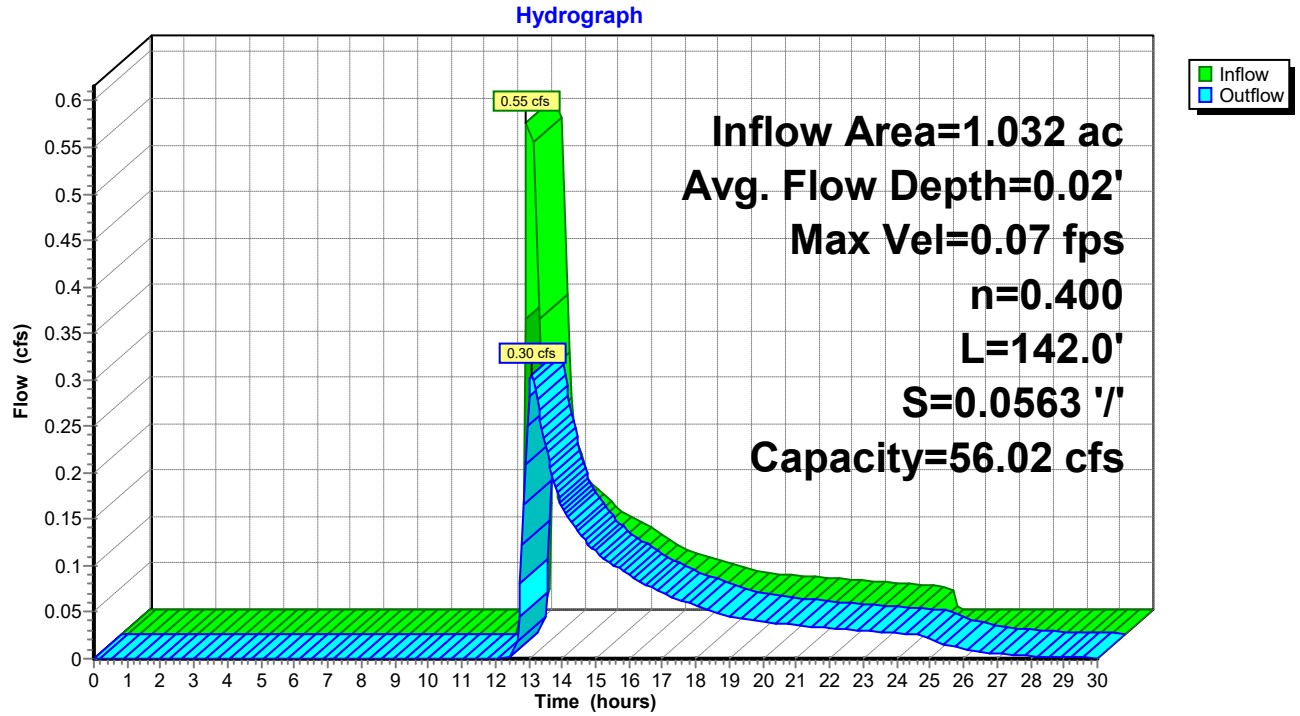
Inflow Area = 1.032 ac, 3.16% Impervious, Inflow Depth = 0.92" for 100-Year event
Inflow = 0.55 cfs @ 12.10 hrs, Volume= 0.079 af
Outflow = 0.30 cfs @ 13.10 hrs, Volume= 0.079 af, Atten= 45%, Lag= 59.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.07 fps, Min. Travel Time= 34.1 min
Avg. Velocity = 0.03 fps, Avg. Travel Time= 69.9 min

Peak Storage= 624 cf @ 12.53 hrs
Average Depth at Peak Storage= 0.02'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 56.02 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 142.0' Slope= 0.0563 '/'
Inlet Invert= 864.00', Outlet Invert= 856.00'

Reach 14R: WOODS



Summary for Reach 15R: WOODS

[62] Hint: Exceeded Reach 5R OUTLET depth by 0.01' @ 24.80 hrs

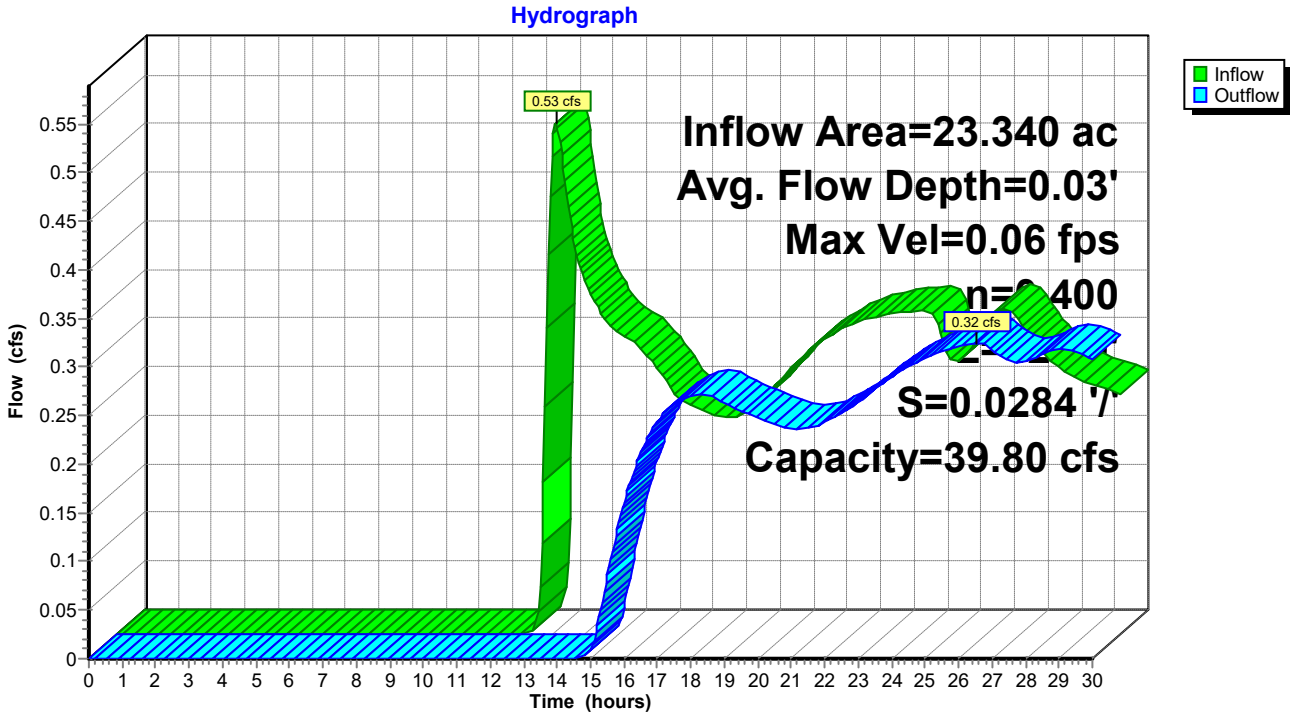
Inflow Area = 23.340 ac, 0.97% Impervious, Inflow Depth > 0.22" for 100-Year event
Inflow = 0.53 cfs @ 13.12 hrs, Volume= 0.426 af
Outflow = 0.32 cfs @ 26.56 hrs, Volume= 0.328 af, Atten= 38%, Lag= 806.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.06 fps, Min. Travel Time= 123.4 min
Avg. Velocity = 0.05 fps, Avg. Travel Time= 137.6 min

Peak Storage= 2,405 cf @ 24.51 hrs
Average Depth at Peak Storage= 0.03'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 39.80 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 429.0' Slope= 0.0284 '/'
Inlet Invert= 862.00', Outlet Invert= 849.80'

Reach 15R: WOODS



Summary for Reach 16R: WOODS

[79] Warning: Submerged Pond DB3 Primary device # 2 OUTLET by 0.03'

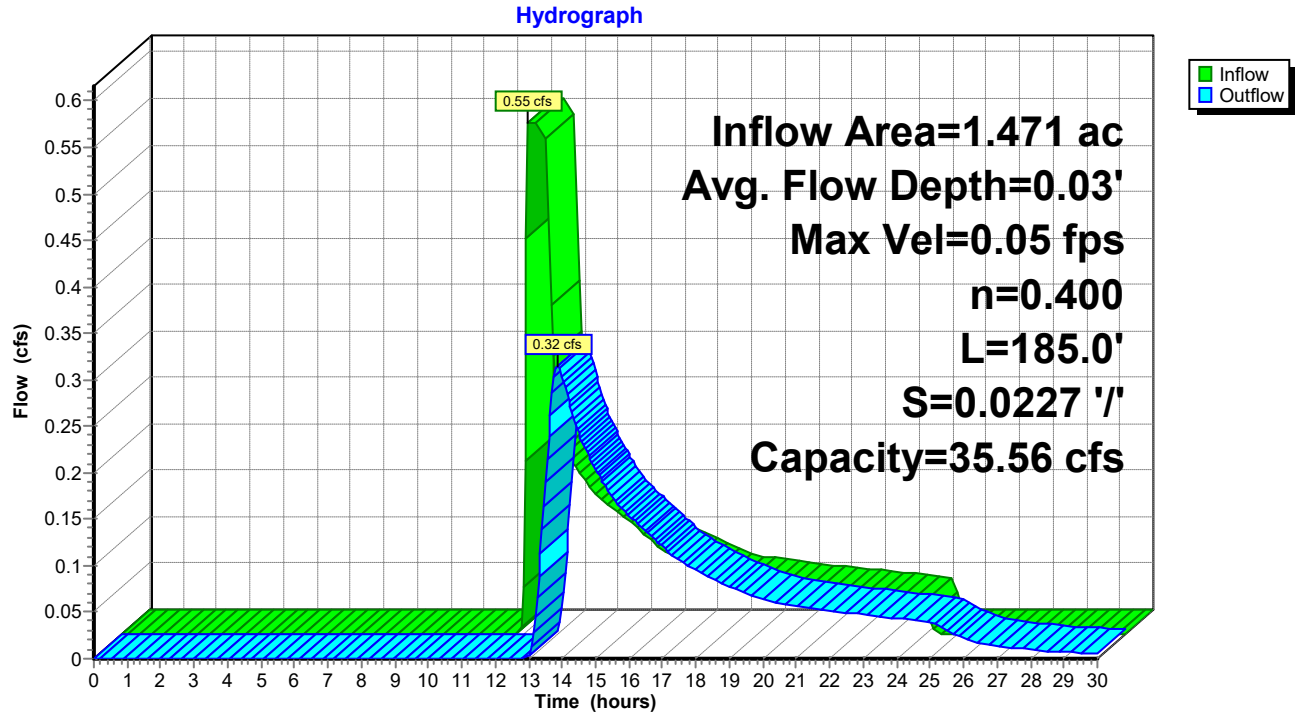
Inflow Area = 1.471 ac, 0.00% Impervious, Inflow Depth = 0.90" for 100-Year event
Inflow = 0.55 cfs @ 12.15 hrs, Volume= 0.111 af
Outflow = 0.32 cfs @ 13.85 hrs, Volume= 0.110 af, Atten= 43%, Lag= 102.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.05 fps, Min. Travel Time= 57.7 min
Avg. Velocity = 0.03 fps, Avg. Travel Time= 111.7 min

Peak Storage= 1,093 cf @ 12.89 hrs
Average Depth at Peak Storage= 0.03'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 35.56 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 185.0' Slope= 0.0227 '/'
Inlet Invert= 854.00', Outlet Invert= 849.80'

Reach 16R: WOODS



Summary for Reach 17R: WOODS-2

[62] Hint: Exceeded Reach 14R OUTLET depth by 0.01' @ 26.15 hrs

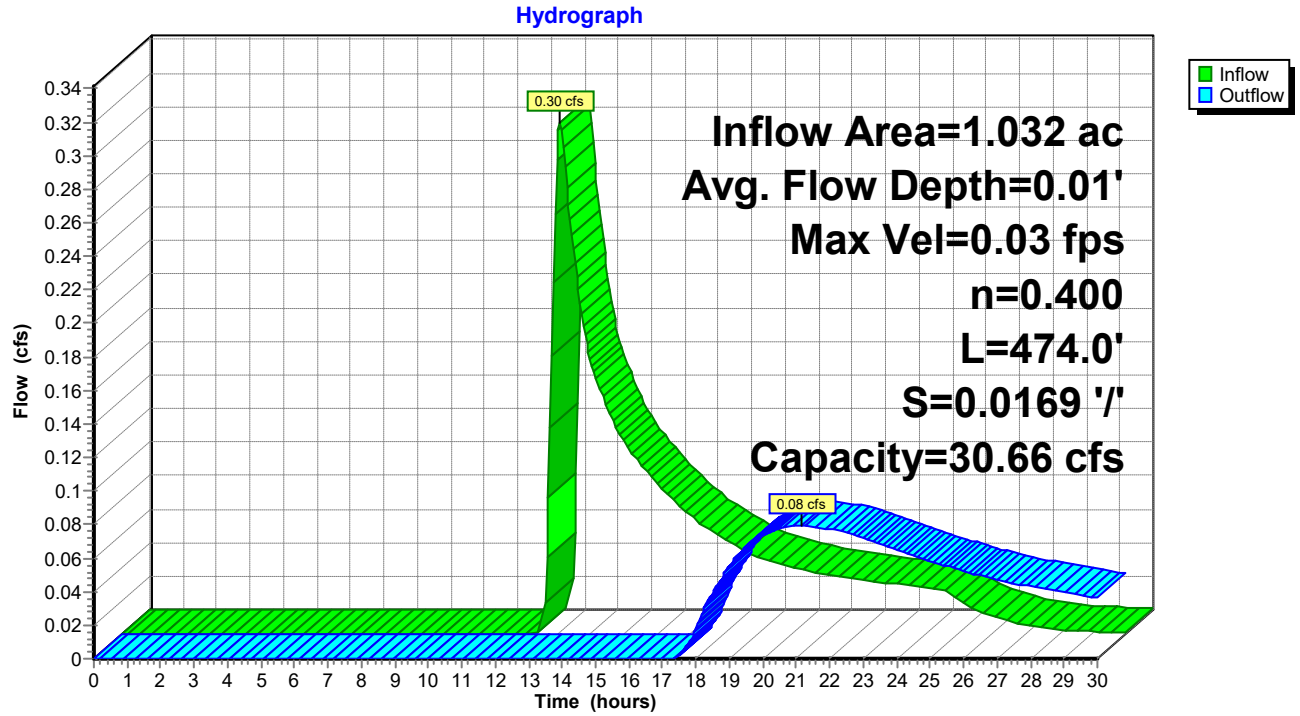
Inflow Area = 1.032 ac, 3.16% Impervious, Inflow Depth > 0.91" for 100-Year event
Inflow = 0.30 cfs @ 13.10 hrs, Volume= 0.079 af
Outflow = 0.08 cfs @ 21.17 hrs, Volume= 0.058 af, Atten= 74%, Lag= 484.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.03 fps, Min. Travel Time= 279.0 min
Avg. Velocity = 0.02 fps, Avg. Travel Time= 350.3 min

Peak Storage= 1,326 cf @ 16.52 hrs
Average Depth at Peak Storage= 0.01'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 30.66 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 474.0' Slope= 0.0169 '/'
Inlet Invert= 856.00', Outlet Invert= 848.00'

Reach 17R: WOODS-2



Summary for Reach 18R: WOODS-4

[62] Hint: Exceeded Reach 2R OUTLET depth by 0.02' @ 29.95 hrs

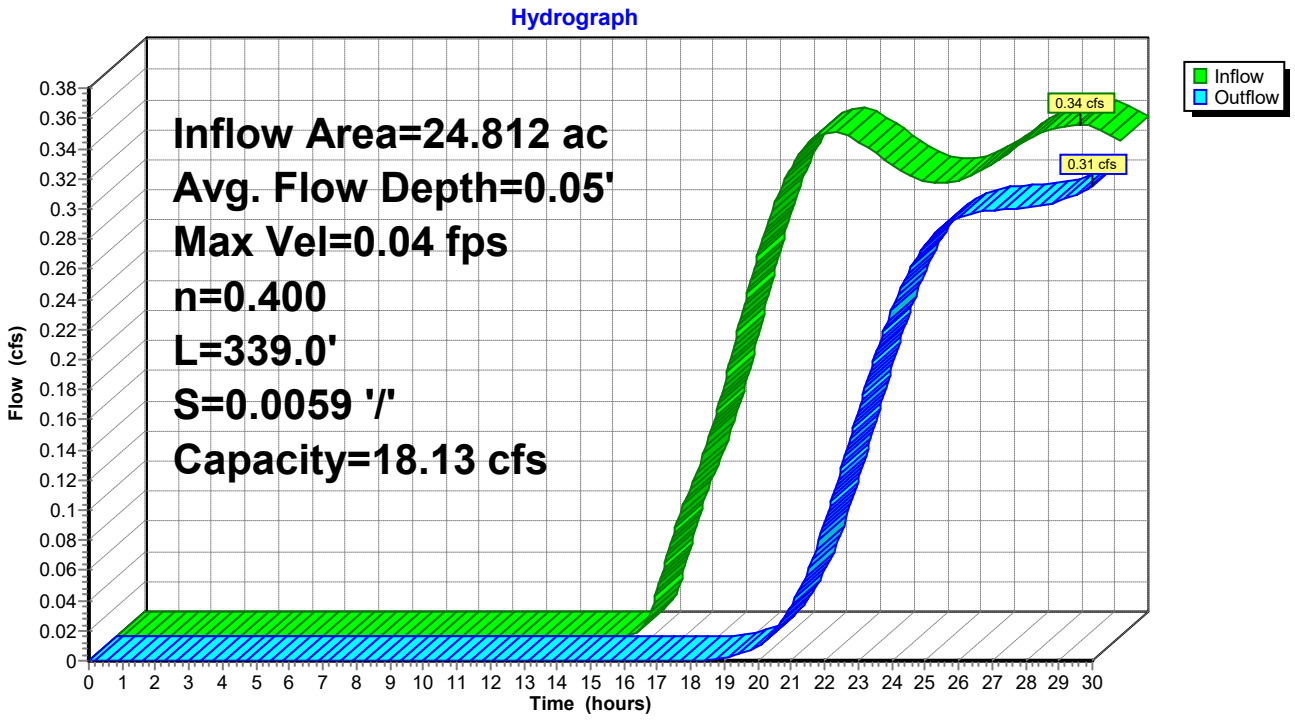
Inflow Area = 24.812 ac, 0.91% Impervious, Inflow Depth > 0.16" for 100-Year event
Inflow = 0.34 cfs @ 28.83 hrs, Volume= 0.321 af
Outflow = 0.31 cfs @ 30.00 hrs, Volume= 0.180 af, Atten= 7%, Lag= 70.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.04 fps, Min. Travel Time= 155.4 min
Avg. Velocity = 0.03 fps, Avg. Travel Time= 205.9 min

Peak Storage= 3,096 cf @ 29.77 hrs
Average Depth at Peak Storage= 0.05'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 18.13 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 339.0' Slope= 0.0059 '/'
Inlet Invert= 840.00', Outlet Invert= 838.00'

Reach 18R: WOODS-4



Summary for Reach CB-A: TO DMH-X

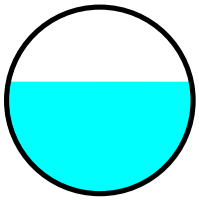
[52] Hint: Inlet/Outlet conditions not evaluated

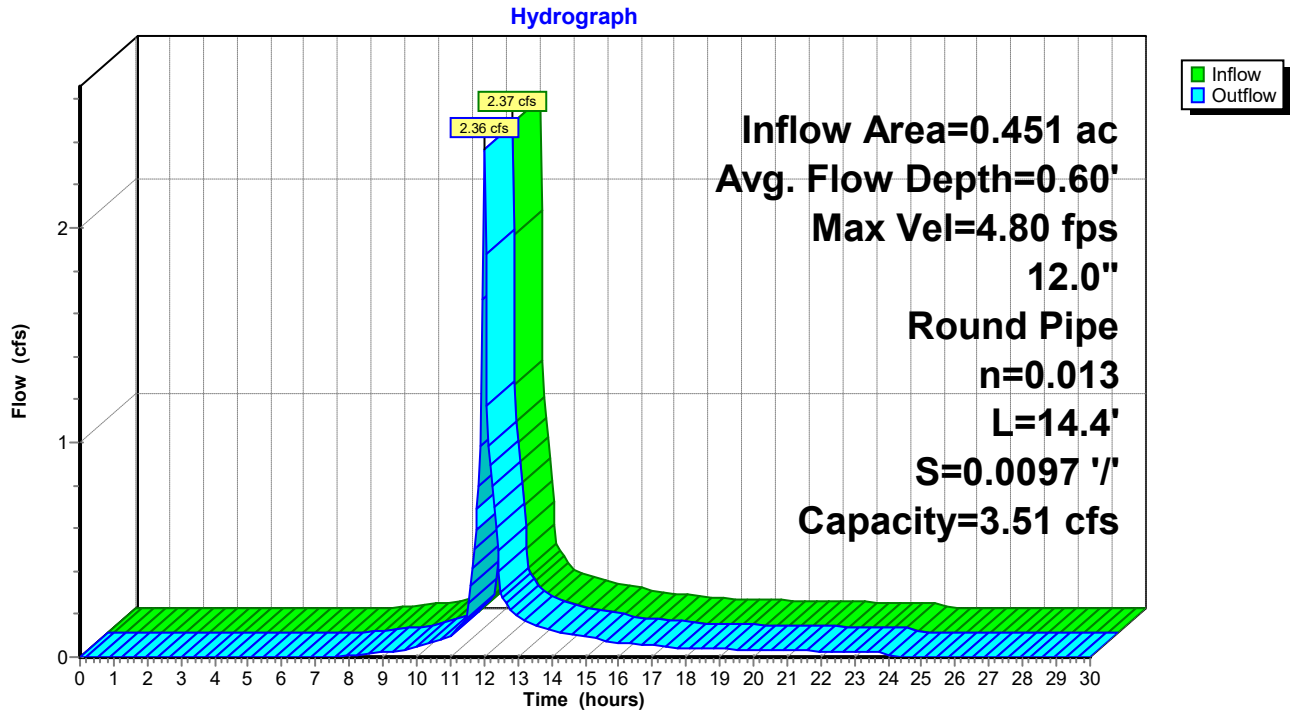
Inflow Area = 0.451 ac, 43.07% Impervious, Inflow Depth = 3.91" for 100-Year event
Inflow = 2.37 cfs @ 12.00 hrs, Volume= 0.147 af
Outflow = 2.36 cfs @ 12.00 hrs, Volume= 0.147 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.80 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.67 fps, Avg. Travel Time= 0.1 min

Peak Storage= 7 cf @ 12.00 hrs
Average Depth at Peak Storage= 0.60'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.51 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 14.4' Slope= 0.0097 '/'
Inlet Invert= 901.29', Outlet Invert= 901.15'





Summary for Reach CB-B: TO DMH-A

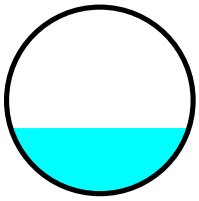
[52] Hint: Inlet/Outlet conditions not evaluated

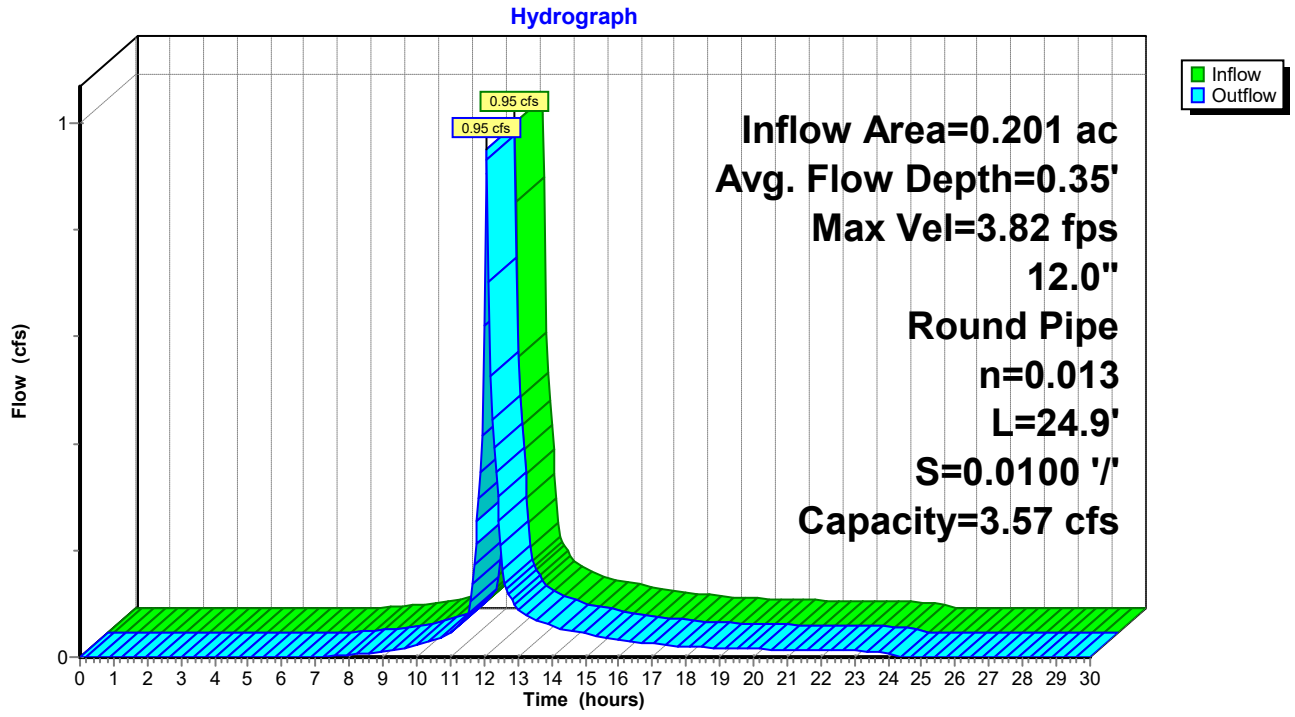
Inflow Area = 0.201 ac, 47.12% Impervious, Inflow Depth = 4.07" for 100-Year event
Inflow = 0.95 cfs @ 12.08 hrs, Volume= 0.068 af
Outflow = 0.95 cfs @ 12.08 hrs, Volume= 0.068 af, Atten= 0%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.82 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.33 fps, Avg. Travel Time= 0.3 min

Peak Storage= 6 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.35'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.57 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 24.9' Slope= 0.0100 '/'
Inlet Invert= 902.74', Outlet Invert= 902.49'





Summary for Reach CB-D: TO DMH-B

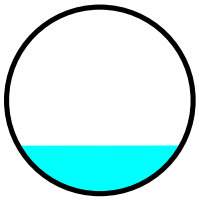
[52] Hint: Inlet/Outlet conditions not evaluated

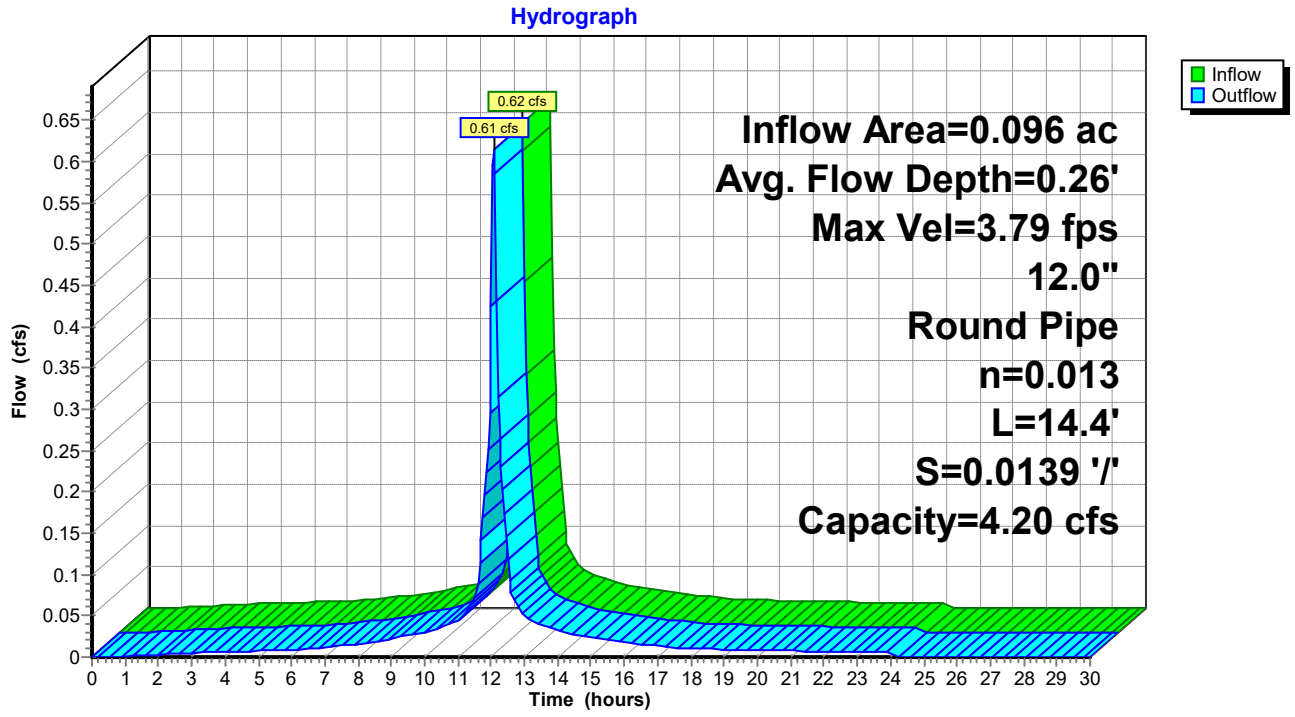
Inflow Area = 0.096 ac,100.00% Impervious, Inflow Depth = 6.26" for 100-Year event
Inflow = 0.62 cfs @ 12.07 hrs, Volume= 0.050 af
Outflow = 0.61 cfs @ 12.07 hrs, Volume= 0.050 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.79 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.26 fps, Avg. Travel Time= 0.2 min

Peak Storage= 2 cf @ 12.07 hrs
Average Depth at Peak Storage= 0.26'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 4.20 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 14.4' Slope= 0.0139 '/'
Inlet Invert= 899.93', Outlet Invert= 899.73'





Summary for Reach CB-E: TO DMH-B

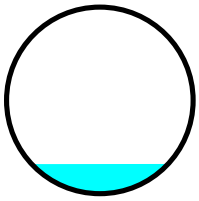
[52] Hint: Inlet/Outlet conditions not evaluated

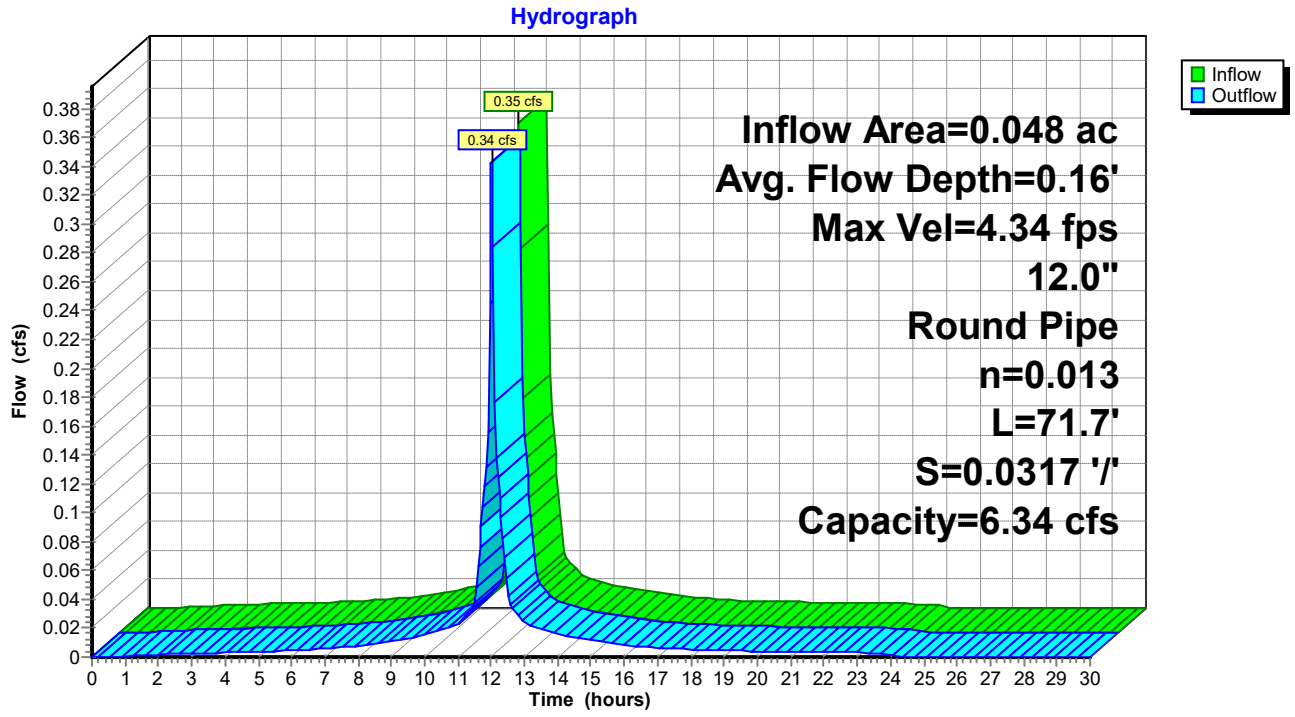
Inflow Area = 0.048 ac,100.00% Impervious, Inflow Depth = 6.26" for 100-Year event
Inflow = 0.35 cfs @ 12.00 hrs, Volume= 0.025 af
Outflow = 0.34 cfs @ 12.01 hrs, Volume= 0.025 af, Atten= 3%, Lag= 0.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.34 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 1.38 fps, Avg. Travel Time= 0.9 min

Peak Storage= 6 cf @ 12.00 hrs
Average Depth at Peak Storage= 0.16'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 6.34 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 71.7' Slope= 0.0317 '/'
Inlet Invert= 902.00', Outlet Invert= 899.73'





Summary for Reach DCB-C: TO DMH-A

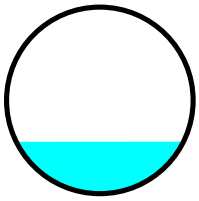
[52] Hint: Inlet/Outlet conditions not evaluated

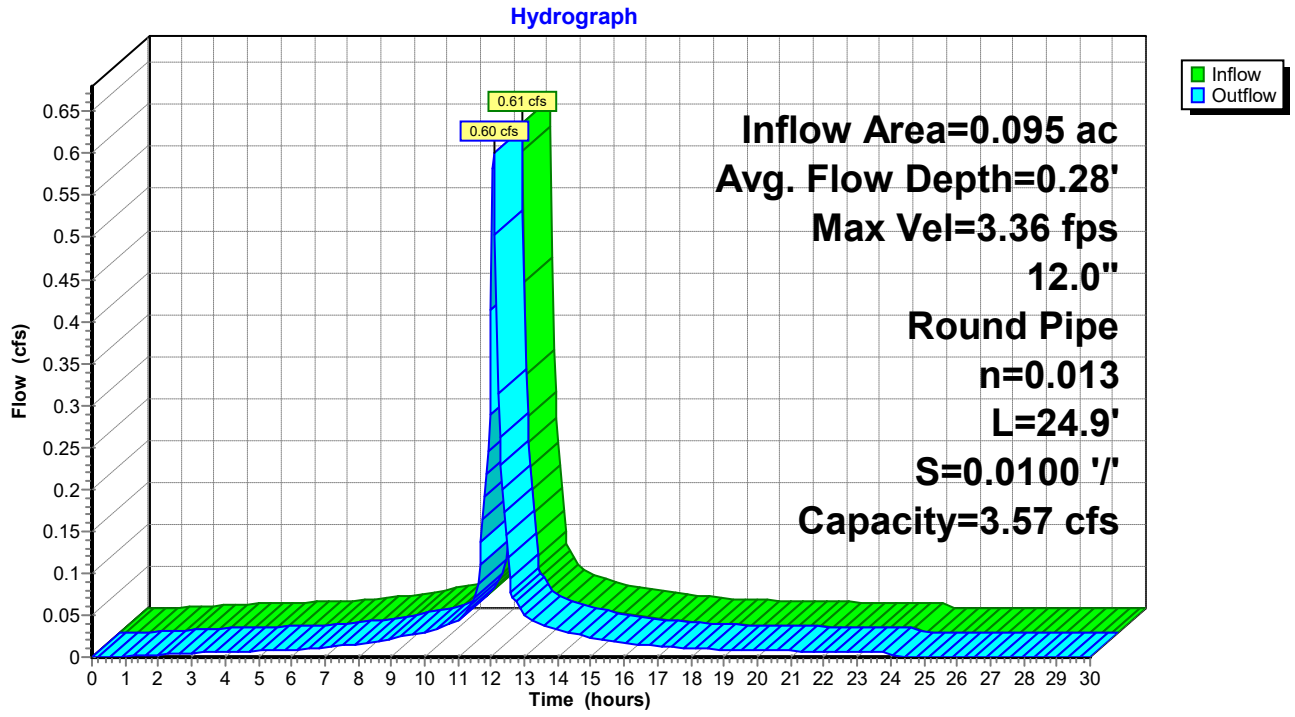
Inflow Area = 0.095 ac,100.00% Impervious, Inflow Depth = 6.26" for 100-Year event
Inflow = 0.61 cfs @ 12.07 hrs, Volume= 0.049 af
Outflow = 0.60 cfs @ 12.07 hrs, Volume= 0.049 af, Atten= 1%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.36 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.12 fps, Avg. Travel Time= 0.4 min

Peak Storage= 4 cf @ 12.07 hrs
Average Depth at Peak Storage= 0.28'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.57 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 24.9' Slope= 0.0100 '/'
Inlet Invert= 902.74', Outlet Invert= 902.49'





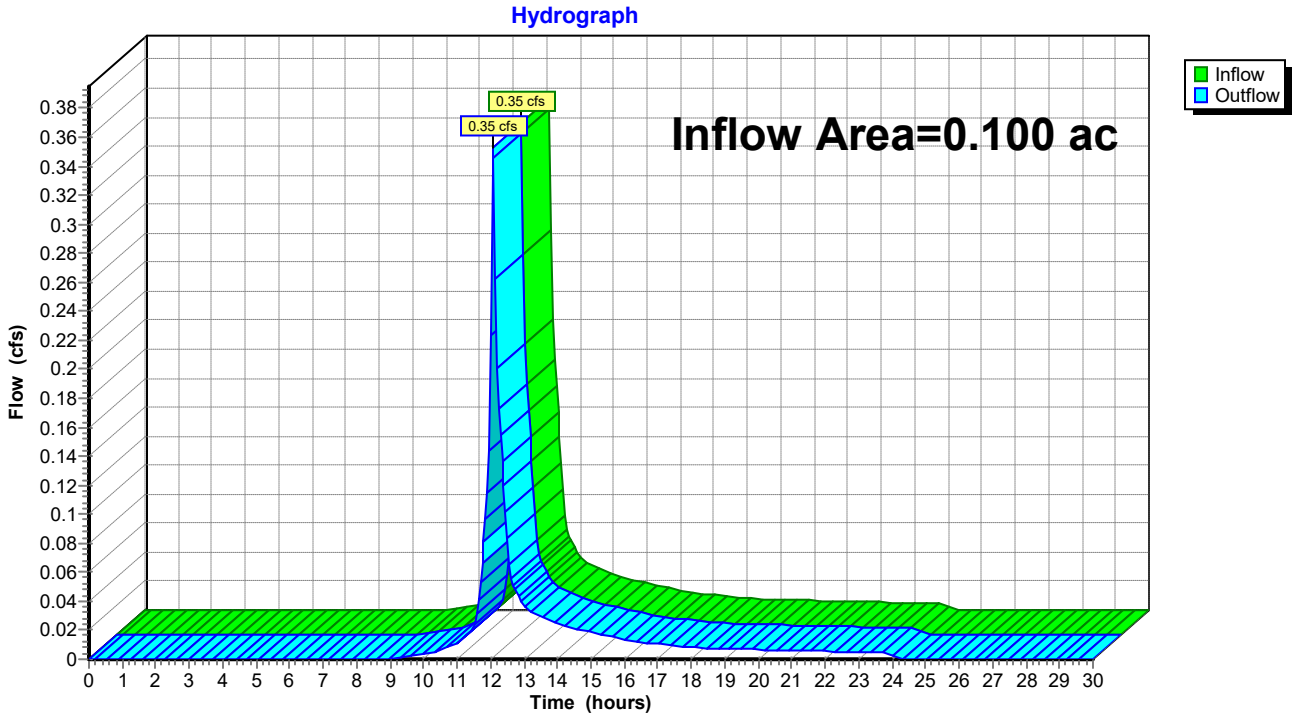
Summary for Reach DCB-F: (new Reach)

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.100 ac, 49.10% Impervious, Inflow Depth = 3.01" for 100-Year event
Inflow = 0.35 cfs @ 12.08 hrs, Volume= 0.025 af
Outflow = 0.35 cfs @ 12.08 hrs, Volume= 0.025 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DCB-F: (new Reach)



Summary for Reach DCB1: TO DMH1

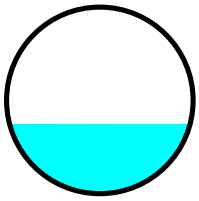
[52] Hint: Inlet/Outlet conditions not evaluated

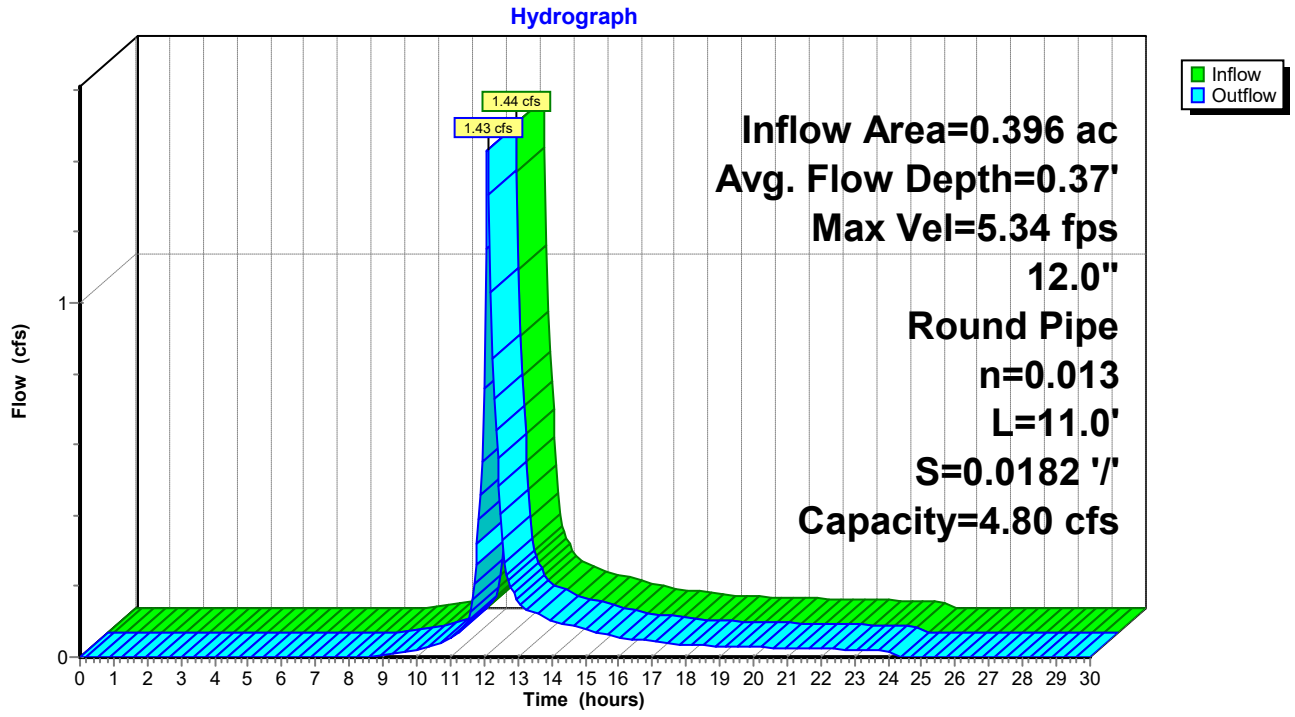
Inflow Area = 0.396 ac, 26.33% Impervious, Inflow Depth = 3.28" for 100-Year event
Inflow = 1.44 cfs @ 12.11 hrs, Volume= 0.108 af
Outflow = 1.43 cfs @ 12.11 hrs, Volume= 0.108 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.34 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 1.96 fps, Avg. Travel Time= 0.1 min

Peak Storage= 3 cf @ 12.11 hrs
Average Depth at Peak Storage= 0.37'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 4.80 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 11.0' Slope= 0.0182 '/'
Inlet Invert= 896.60', Outlet Invert= 896.40'





Summary for Reach DCB2: TO DMH#1

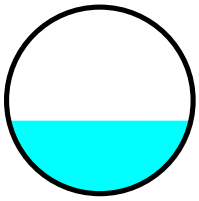
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 0.282 ac, 37.25% Impervious, Inflow Depth = 3.69" for 100-Year event
Inflow = 1.22 cfs @ 12.08 hrs, Volume= 0.087 af
Outflow = 1.22 cfs @ 12.08 hrs, Volume= 0.087 af, Atten= 0%, Lag= 0.2 min

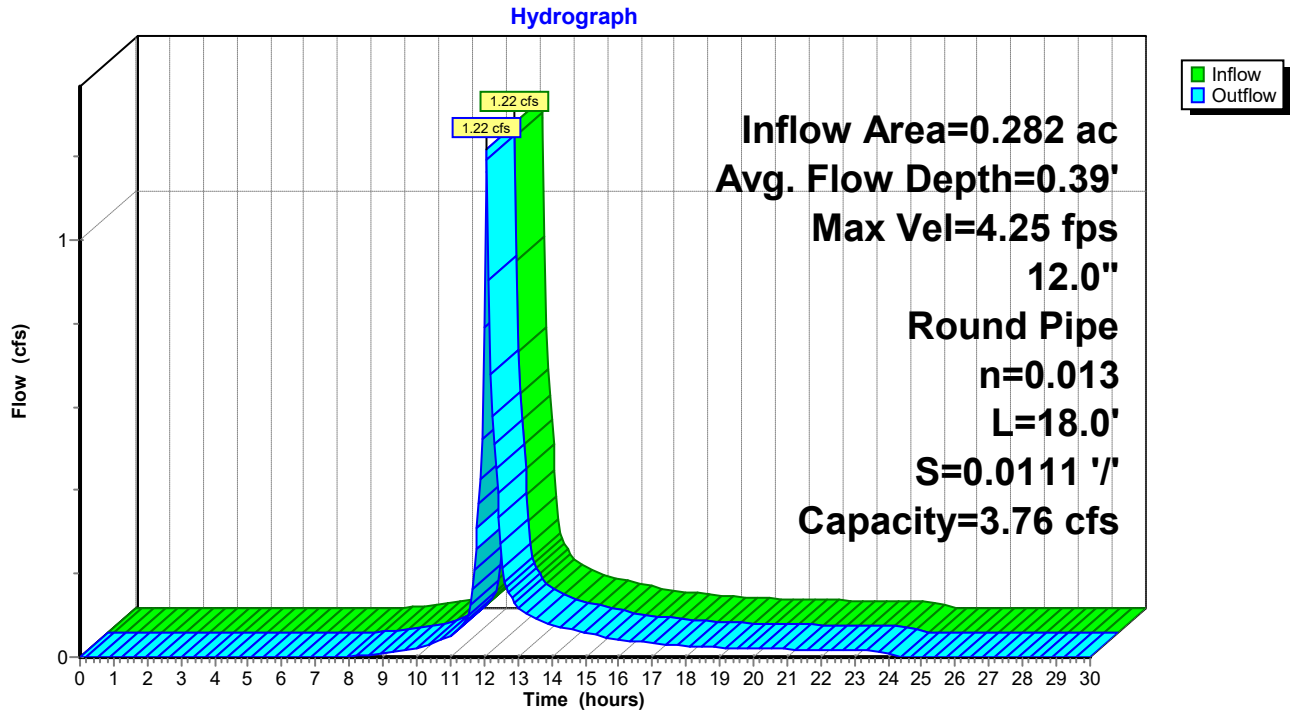
Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.25 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.51 fps, Avg. Travel Time= 0.2 min

Peak Storage= 5 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.39'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.76 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 18.0' Slope= 0.0111 '/'
Inlet Invert= 896.60', Outlet Invert= 896.40'



Reach DCB2: TO DMH#1



Summary for Reach DMH-A: TO DMH-D

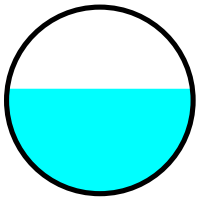
[52] Hint: Inlet/Outlet conditions not evaluated
[62] Hint: Exceeded Reach CB-B OUTLET depth by 0.12' @ 12.10 hrs
[62] Hint: Exceeded Reach DCB-C OUTLET depth by 0.19' @ 12.10 hrs

Inflow Area = 0.295 ac, 64.06% Impervious, Inflow Depth = 4.77" for 100-Year event
Inflow = 1.55 cfs @ 12.08 hrs, Volume= 0.117 af
Outflow = 1.47 cfs @ 12.12 hrs, Volume= 0.117 af, Atten= 5%, Lag= 2.2 min

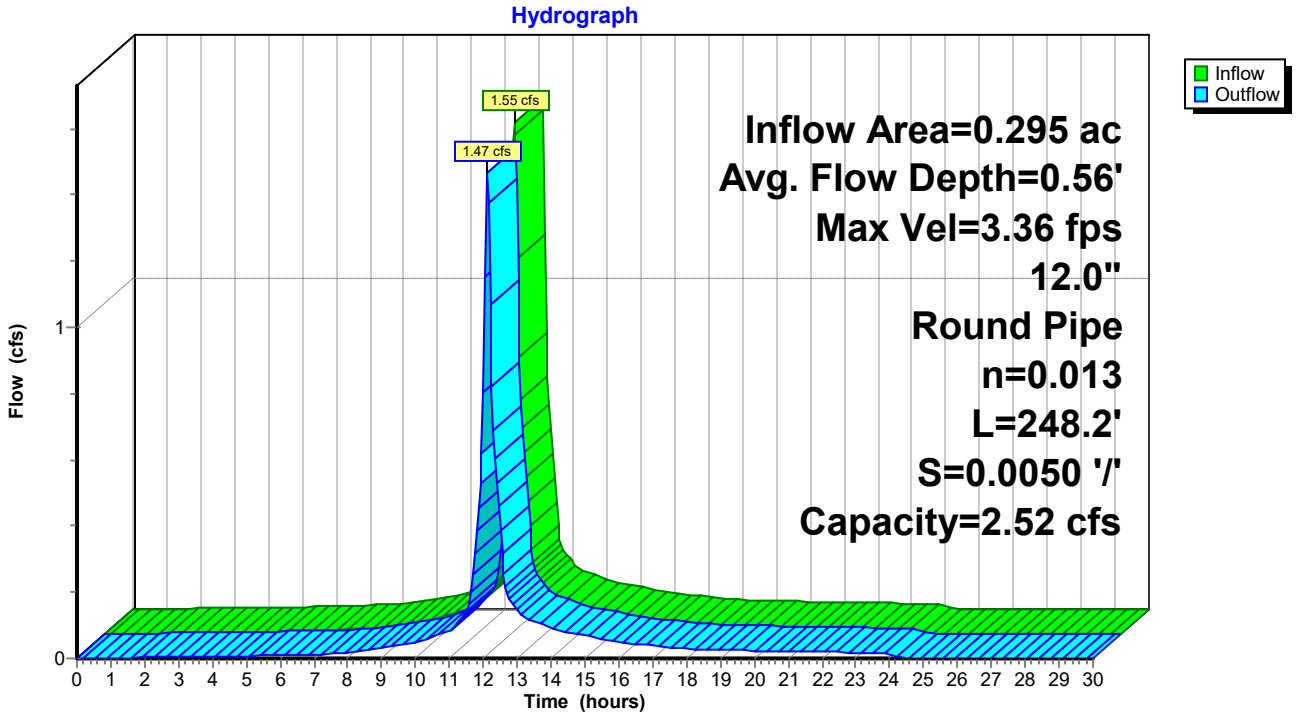
Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.36 fps, Min. Travel Time= 1.2 min
Avg. Velocity = 1.06 fps, Avg. Travel Time= 3.9 min

Peak Storage= 113 cf @ 12.10 hrs
Average Depth at Peak Storage= 0.56'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.52 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 248.2' Slope= 0.0050 '/'
Inlet Invert= 902.39', Outlet Invert= 901.15'



Reach DMH-A: TO DMH-D



Summary for Reach DMH-B: TO DMH-C

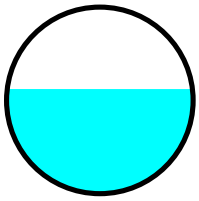
[52] Hint: Inlet/Outlet conditions not evaluated

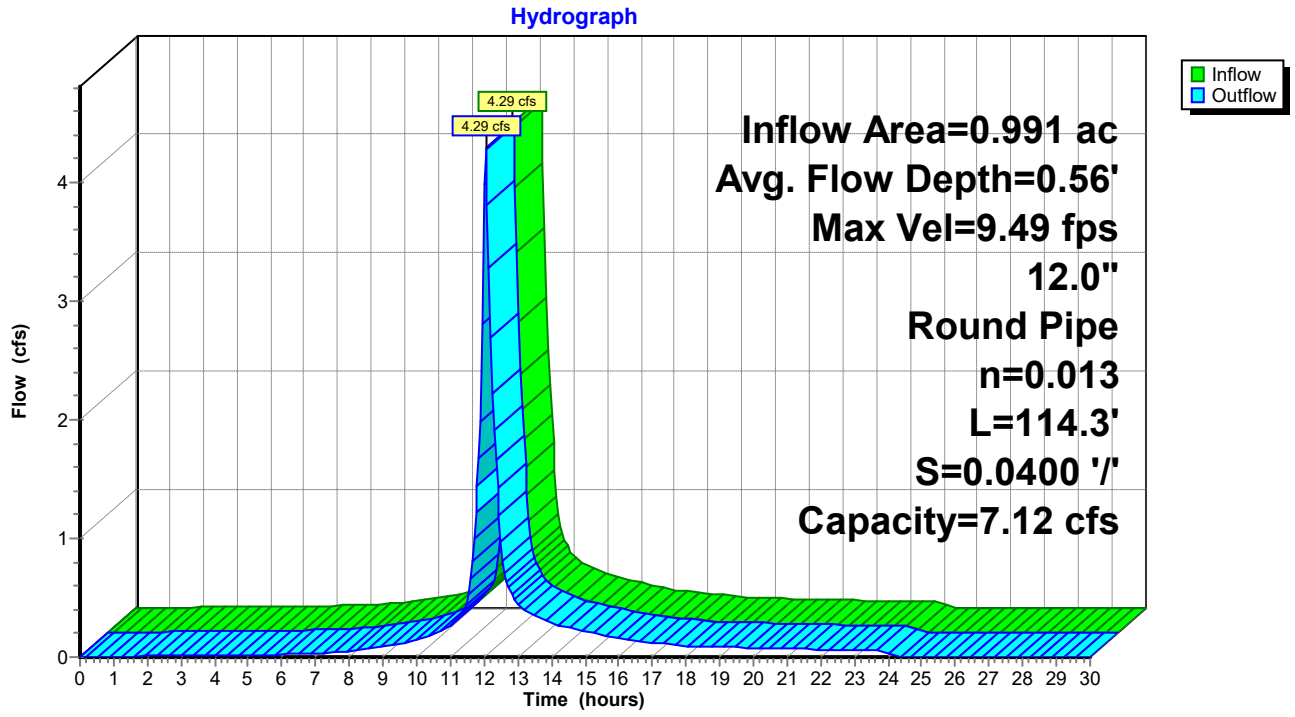
Inflow Area = 0.991 ac, 58.24% Impervious, Inflow Depth = 4.42" for 100-Year event
Inflow = 4.29 cfs @ 12.04 hrs, Volume= 0.365 af
Outflow = 4.29 cfs @ 12.04 hrs, Volume= 0.365 af, Atten= 0%, Lag= 0.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 9.49 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 3.07 fps, Avg. Travel Time= 0.6 min

Peak Storage= 52 cf @ 12.04 hrs
Average Depth at Peak Storage= 0.56'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 7.12 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 114.3' Slope= 0.0400 '/'
Inlet Invert= 894.99', Outlet Invert= 890.42'





Summary for Reach DMH-C: TO S. BASIN

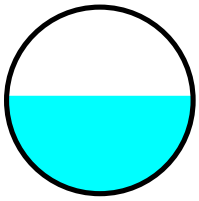
[52] Hint: Inlet/Outlet conditions not evaluated

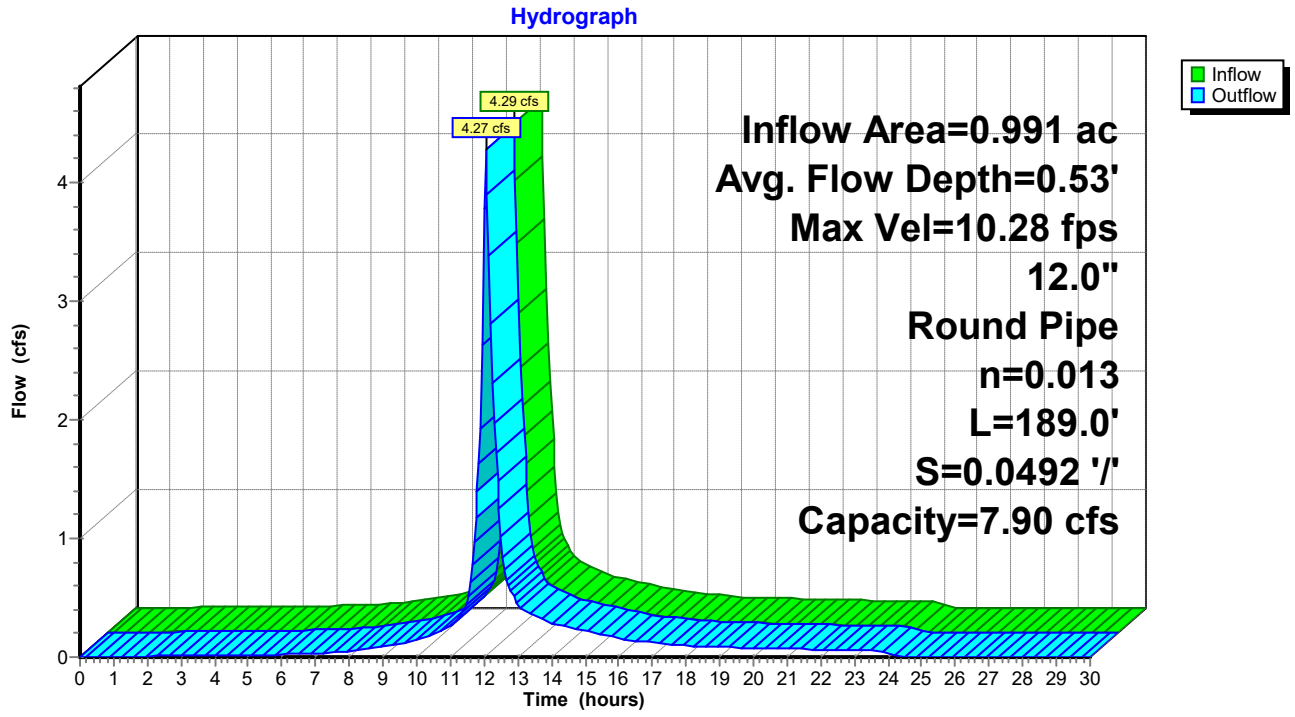
Inflow Area = 0.991 ac, 58.24% Impervious, Inflow Depth = 4.42" for 100-Year event
Inflow = 4.29 cfs @ 12.04 hrs, Volume= 0.365 af
Outflow = 4.27 cfs @ 12.05 hrs, Volume= 0.365 af, Atten= 0%, Lag= 0.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 10.28 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 3.30 fps, Avg. Travel Time= 1.0 min

Peak Storage= 79 cf @ 12.05 hrs
Average Depth at Peak Storage= 0.53'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 7.90 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 189.0' Slope= 0.0492 '/'
Inlet Invert= 888.30', Outlet Invert= 879.00'





Summary for Reach DMH-D: TO DMH-B

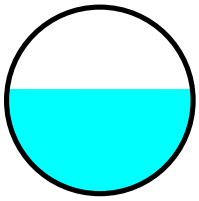
[52] Hint: Inlet/Outlet conditions not evaluated

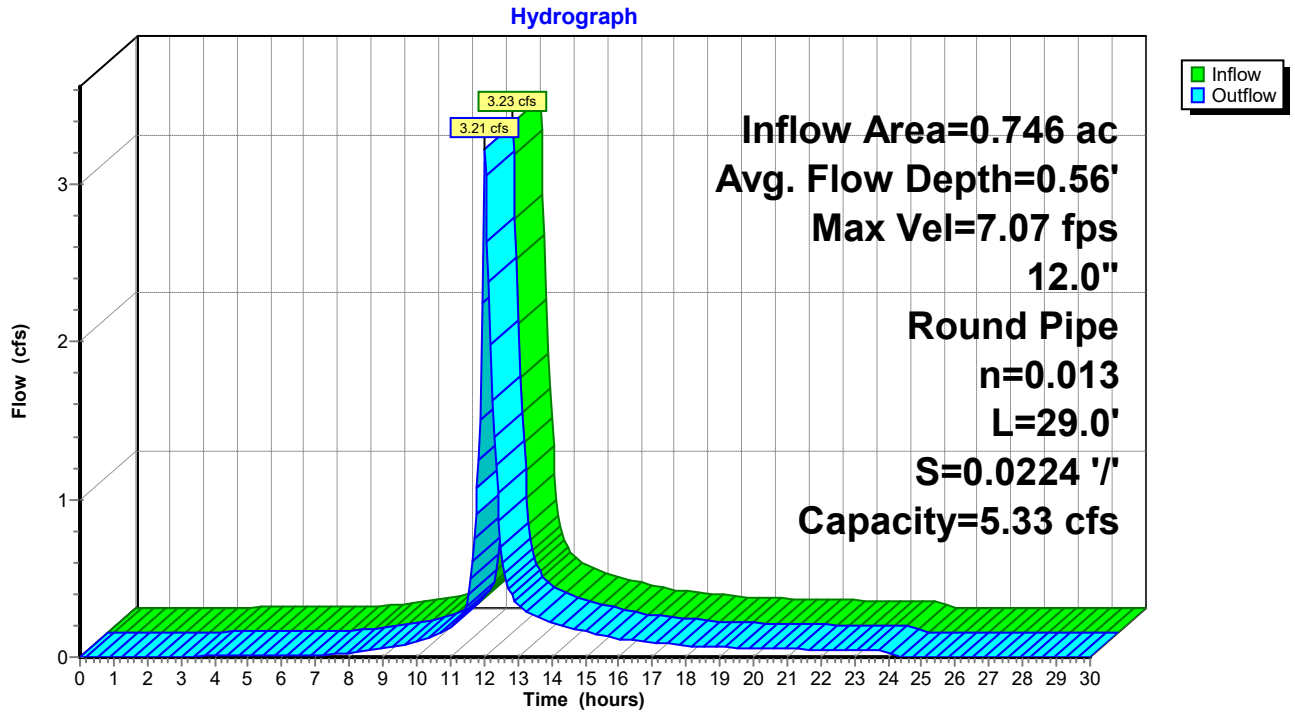
Inflow Area = 0.746 ac, 51.38% Impervious, Inflow Depth = 4.25" for 100-Year event
Inflow = 3.23 cfs @ 12.02 hrs, Volume= 0.264 af
Outflow = 3.21 cfs @ 12.02 hrs, Volume= 0.264 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.07 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 2.22 fps, Avg. Travel Time= 0.2 min

Peak Storage= 13 cf @ 12.02 hrs
Average Depth at Peak Storage= 0.56'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 5.33 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 29.0' Slope= 0.0224 '/'
Inlet Invert= 900.38', Outlet Invert= 899.73'





Summary for Reach DMH1: TO DMH#2

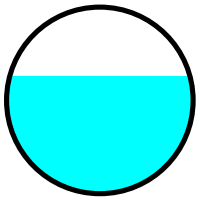
[52] Hint: Inlet/Outlet conditions not evaluated
[62] Hint: Exceeded Reach DCB1 OUTLET depth by 0.06' @ 12.10 hrs
[62] Hint: Exceeded Reach DCB2 OUTLET depth by 0.05' @ 12.15 hrs

Inflow Area = 0.678 ac, 30.87% Impervious, Inflow Depth = 3.45" for 100-Year event
Inflow = 2.62 cfs @ 12.10 hrs, Volume= 0.195 af
Outflow = 2.53 cfs @ 12.12 hrs, Volume= 0.195 af, Atten= 3%, Lag= 1.2 min

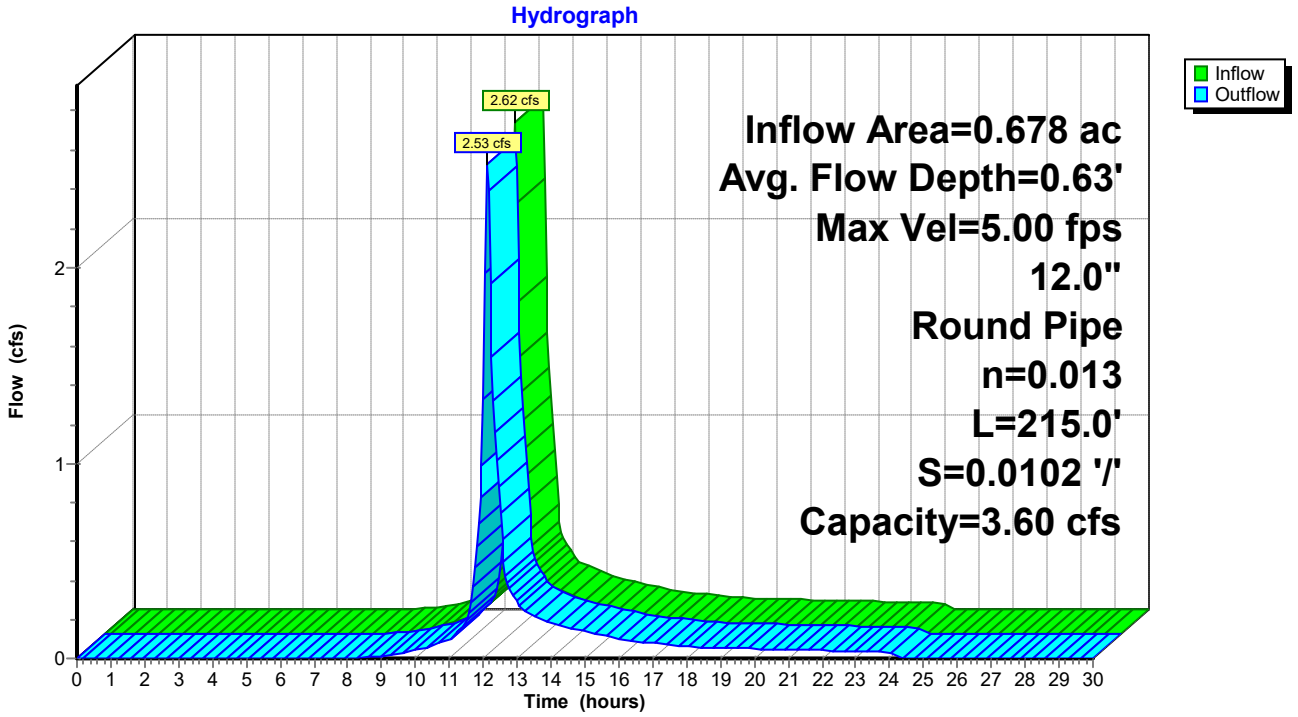
Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.00 fps, Min. Travel Time= 0.7 min
Avg. Velocity = 1.82 fps, Avg. Travel Time= 2.0 min

Peak Storage= 112 cf @ 12.11 hrs
Average Depth at Peak Storage= 0.63'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.60 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 215.0' Slope= 0.0102 '/'
Inlet Invert= 896.20', Outlet Invert= 894.00'



Reach DMH1: TO DMH#2



Summary for Reach DMH2: TO D.BASIN#13

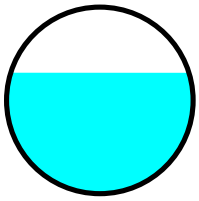
[52] Hint: Inlet/Outlet conditions not evaluated
[61] Hint: Exceeded Reach DMH1 outlet invert by 0.54' @ 12.15 hrs

Inflow Area = 0.678 ac, 30.87% Impervious, Inflow Depth = 3.45" for 100-Year event
Inflow = 2.53 cfs @ 12.12 hrs, Volume= 0.195 af
Outflow = 2.45 cfs @ 12.14 hrs, Volume= 0.195 af, Atten= 3%, Lag= 1.7 min

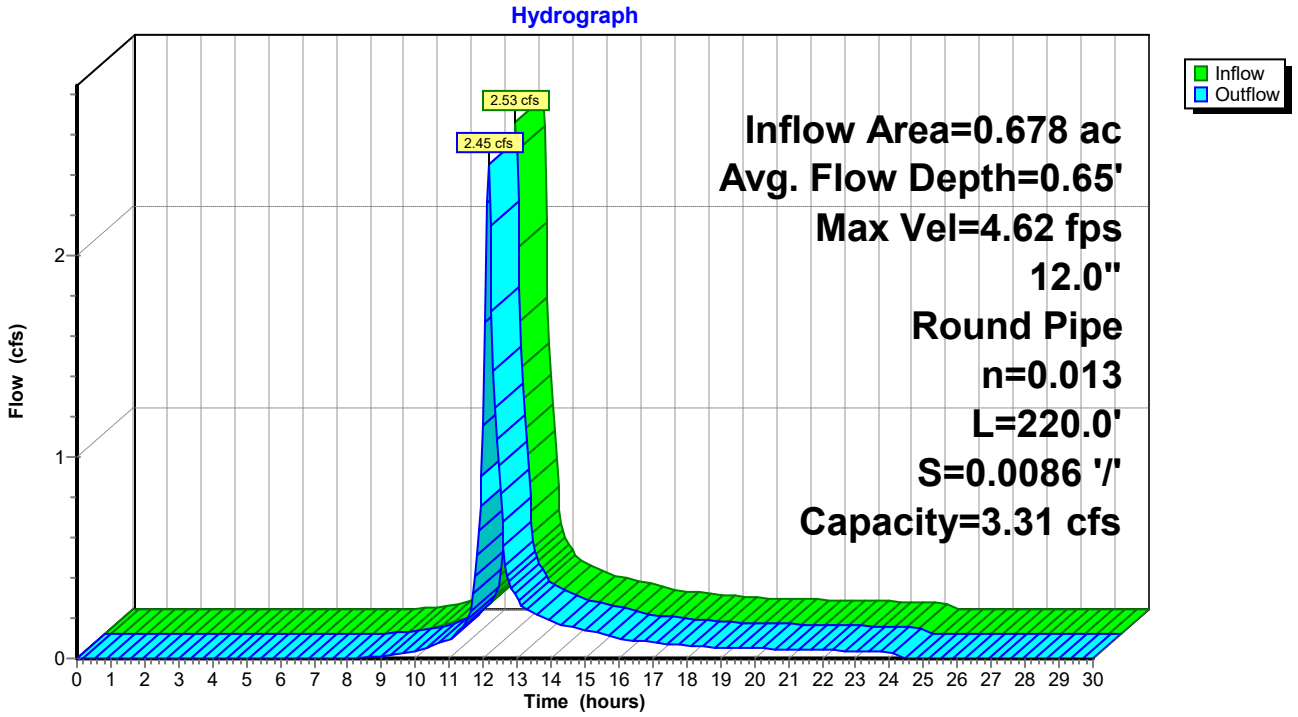
Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.62 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 1.69 fps, Avg. Travel Time= 2.2 min

Peak Storage= 119 cf @ 12.13 hrs
Average Depth at Peak Storage= 0.65'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.31 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 220.0' Slope= 0.0086 '/'
Inlet Invert= 893.90', Outlet Invert= 892.00'



Reach DMH2: TO D.BASIN#13



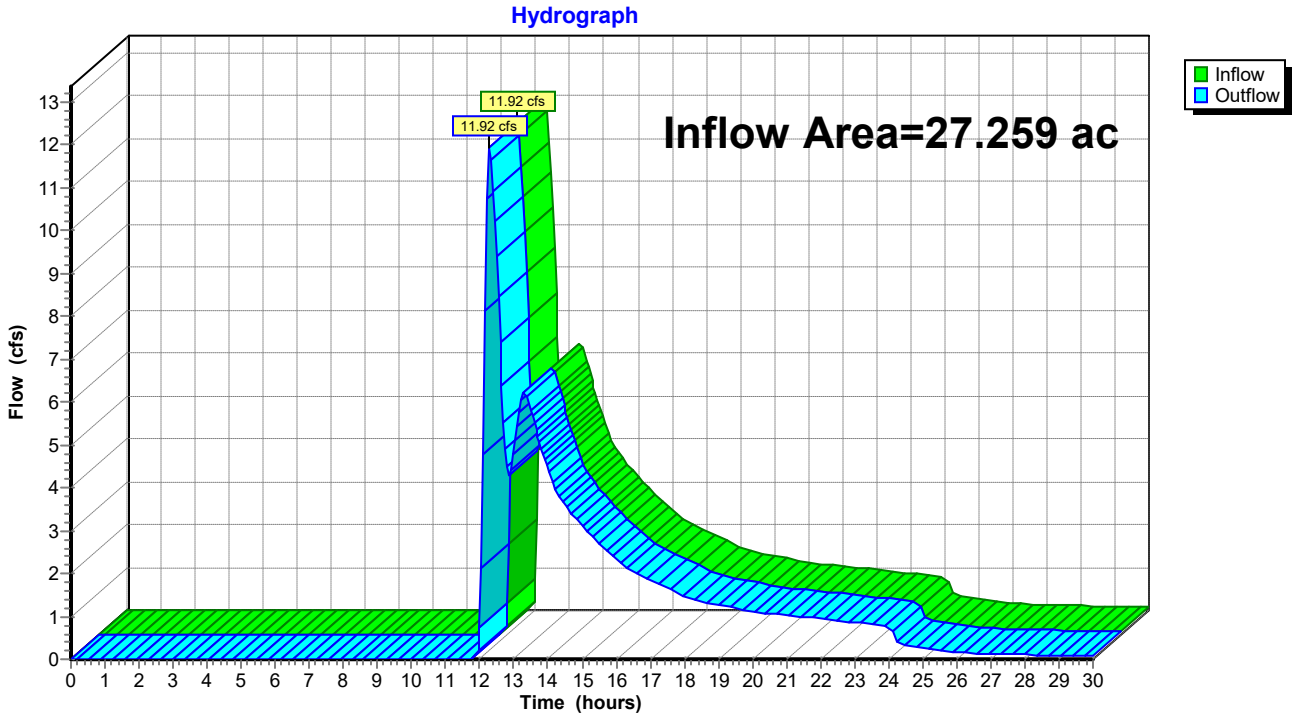
Summary for Reach DP1: DP#1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 27.259 ac, 0.48% Impervious, Inflow Depth > 1.10" for 100-Year event
Inflow = 11.92 cfs @ 12.28 hrs, Volume= 2.494 af
Outflow = 11.92 cfs @ 12.28 hrs, Volume= 2.494 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP1: DP#1



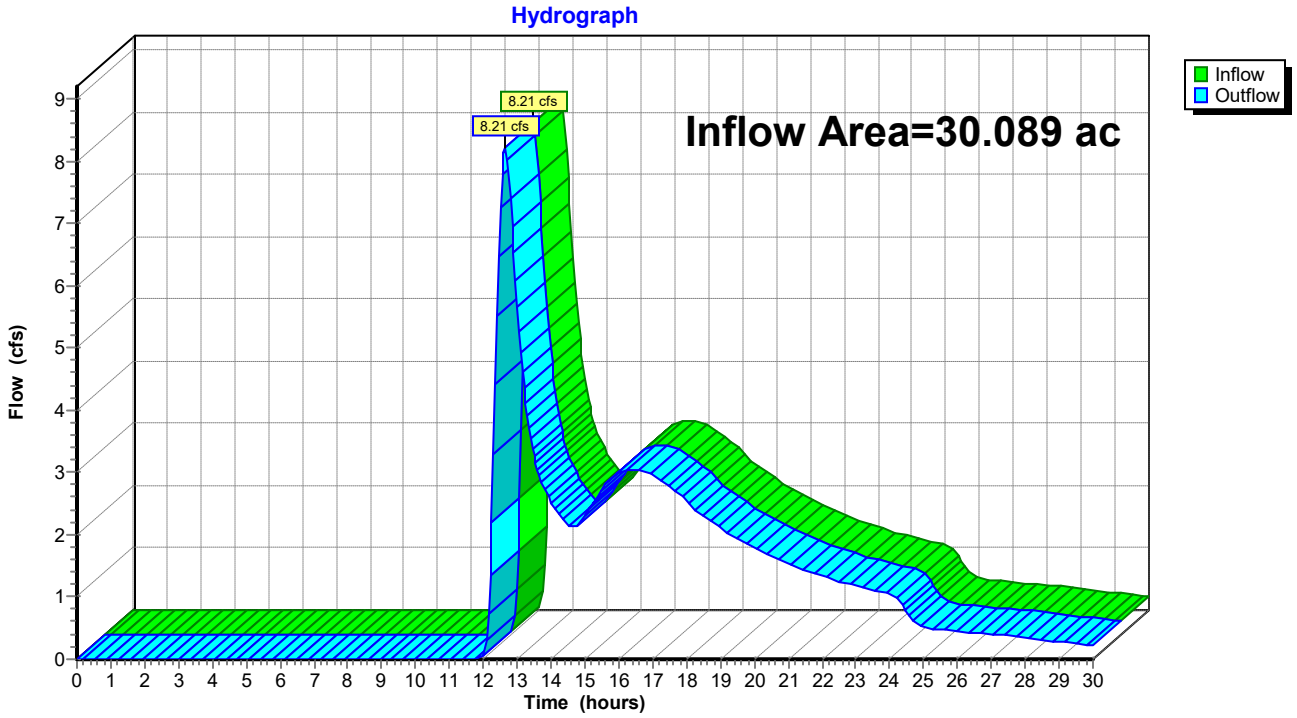
Summary for Reach DP12: DP12

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 30.089 ac, 0.70% Impervious, Inflow Depth > 1.04" for 100-Year event
Inflow = 8.21 cfs @ 12.64 hrs, Volume= 2.618 af
Outflow = 8.21 cfs @ 12.64 hrs, Volume= 2.618 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP12: DP12



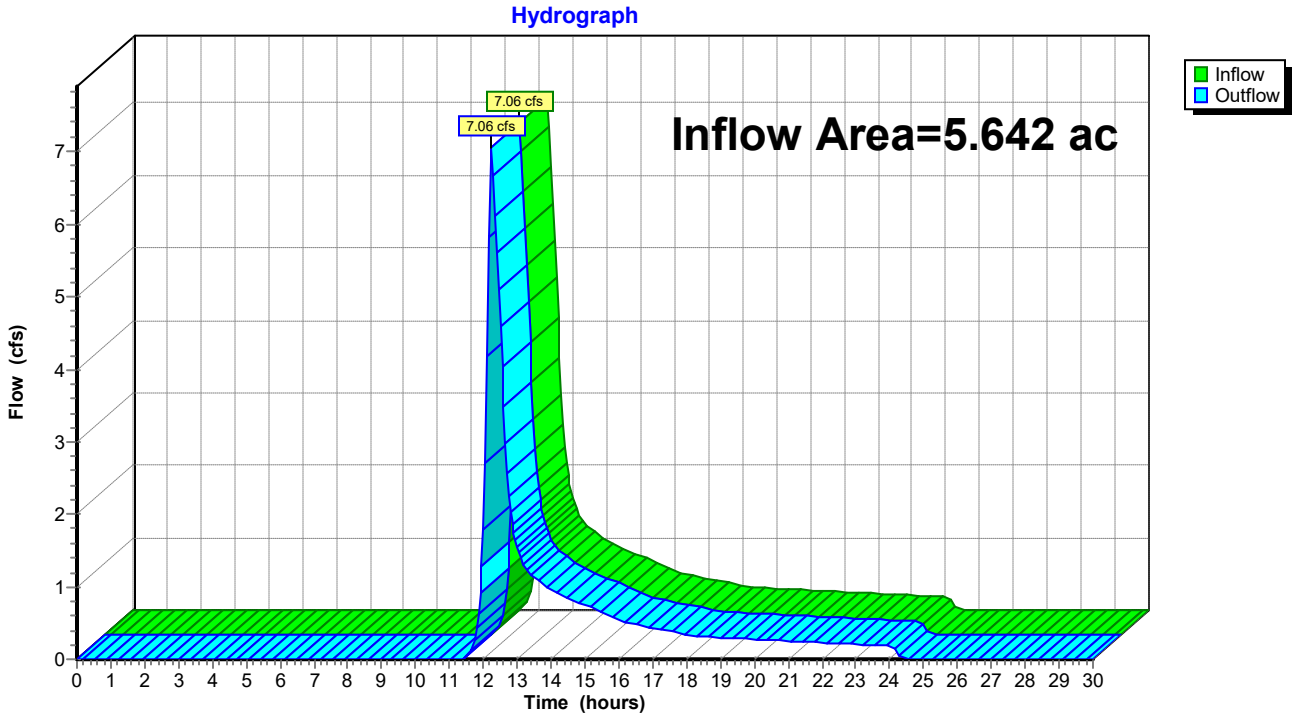
Summary for Reach DP13: DP131

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 5.642 ac, 0.00% Impervious, Inflow Depth = 1.63" for 100-Year event
Inflow = 7.06 cfs @ 12.24 hrs, Volume= 0.766 af
Outflow = 7.06 cfs @ 12.24 hrs, Volume= 0.766 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP13: DP131



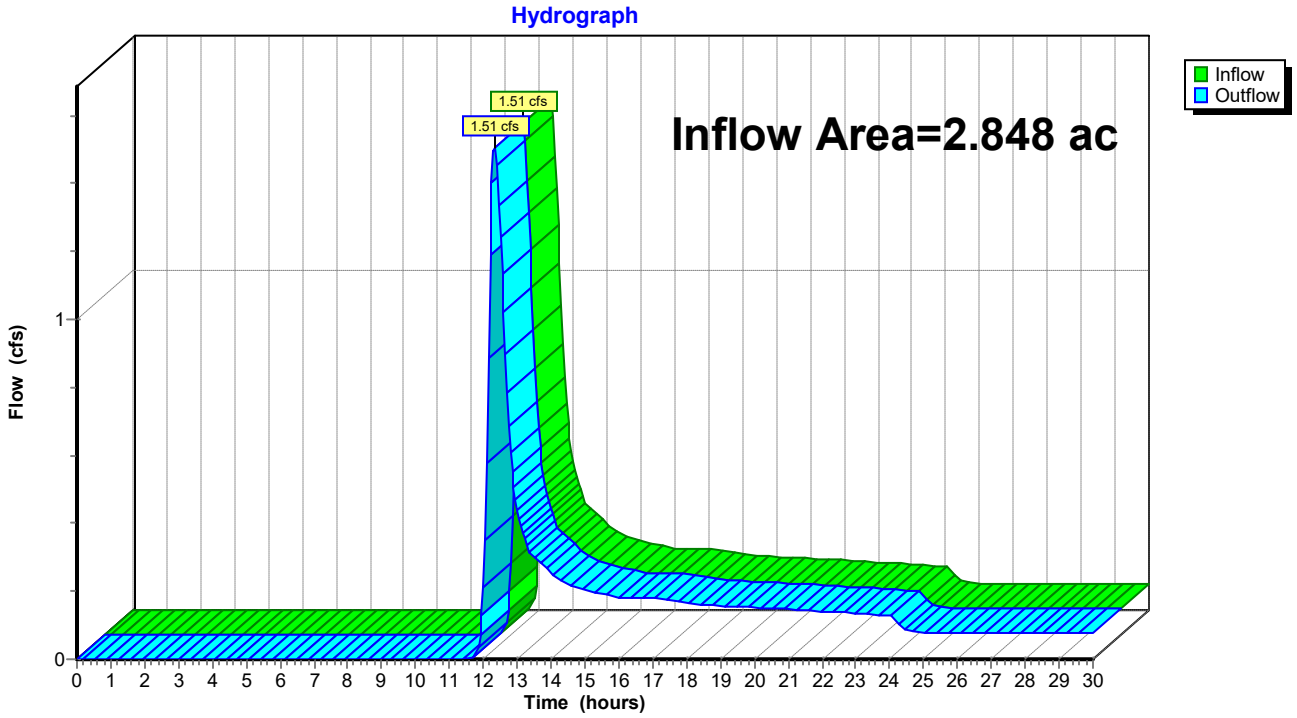
Summary for Reach DP14: DP14

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 2.848 ac, 0.00% Impervious, Inflow Depth > 1.18" for 100-Year event
Inflow = 1.51 cfs @ 12.32 hrs, Volume= 0.281 af
Outflow = 1.51 cfs @ 12.32 hrs, Volume= 0.281 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP14: DP14



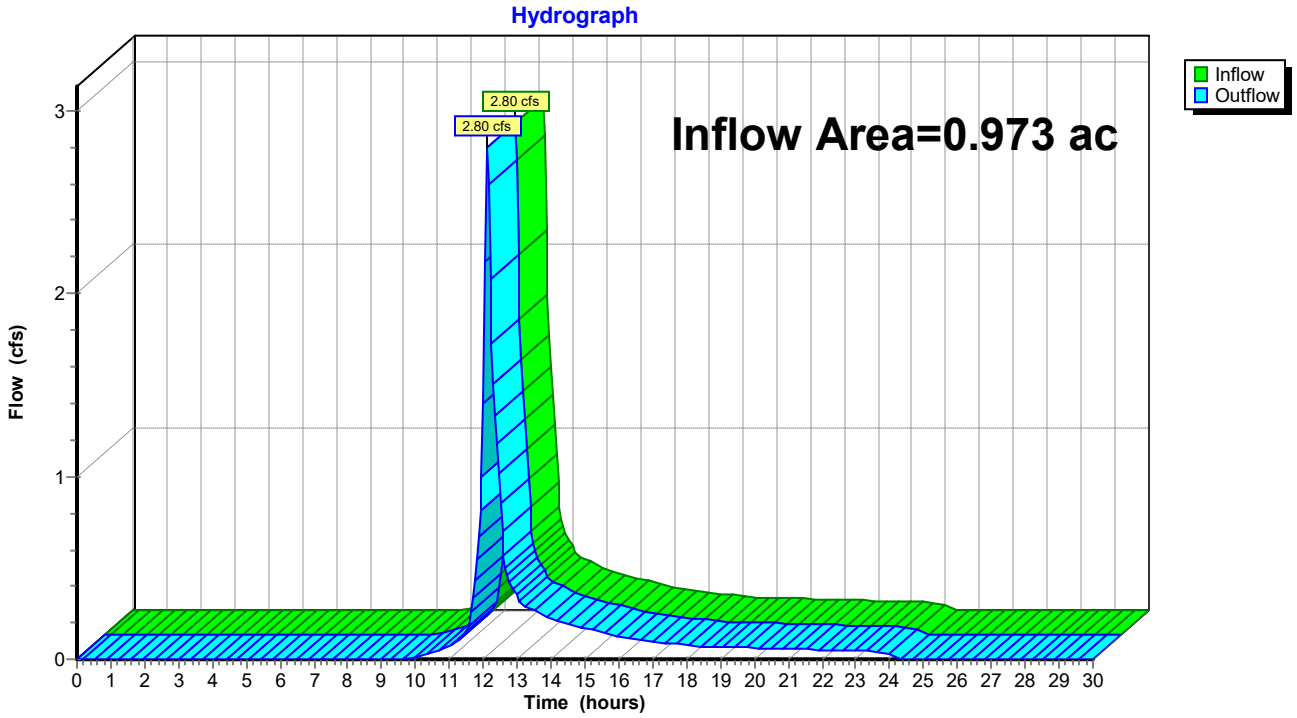
Summary for Reach DP15: DP15

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.973 ac, 10.17% Impervious, Inflow Depth = 2.66" for 100-Year event
Inflow = 2.80 cfs @ 12.11 hrs, Volume= 0.216 af
Outflow = 2.80 cfs @ 12.11 hrs, Volume= 0.216 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP15: DP15



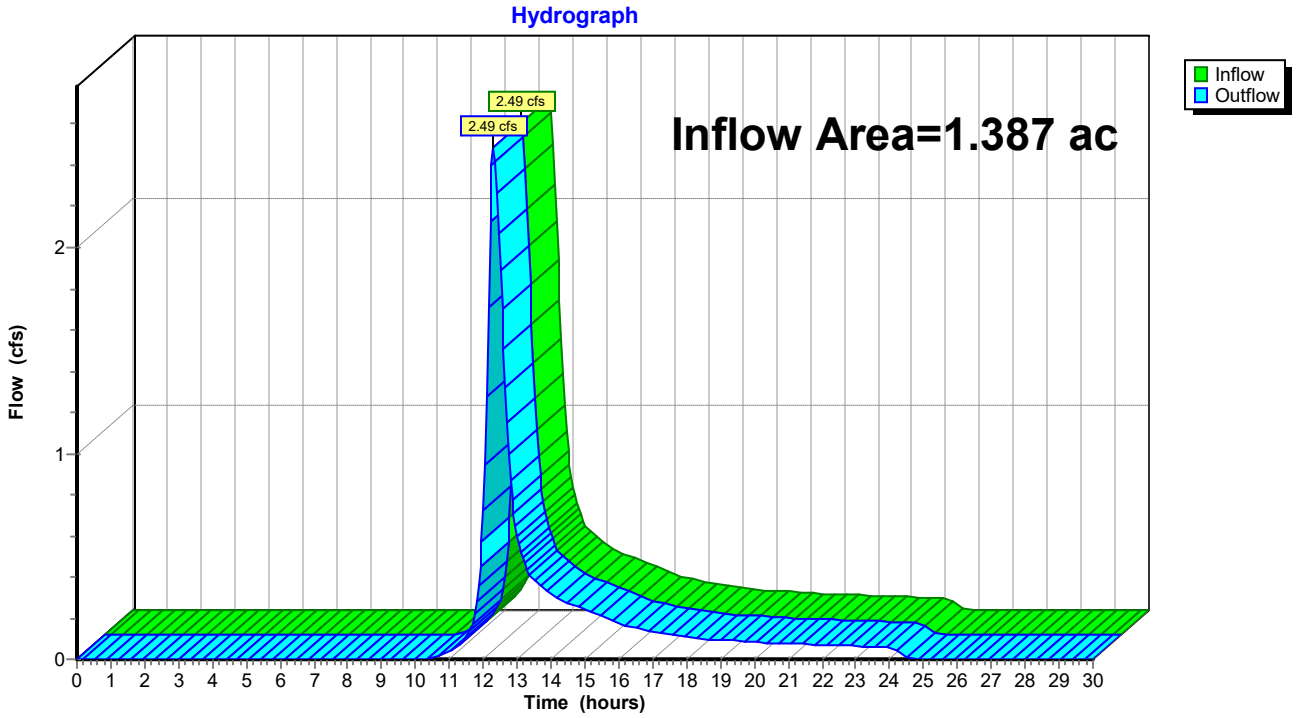
Summary for Reach DP16: DP16

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.387 ac, 10.83% Impervious, Inflow Depth = 2.39" for 100-Year event
Inflow = 2.49 cfs @ 12.30 hrs, Volume= 0.276 af
Outflow = 2.49 cfs @ 12.30 hrs, Volume= 0.276 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP16: DP16



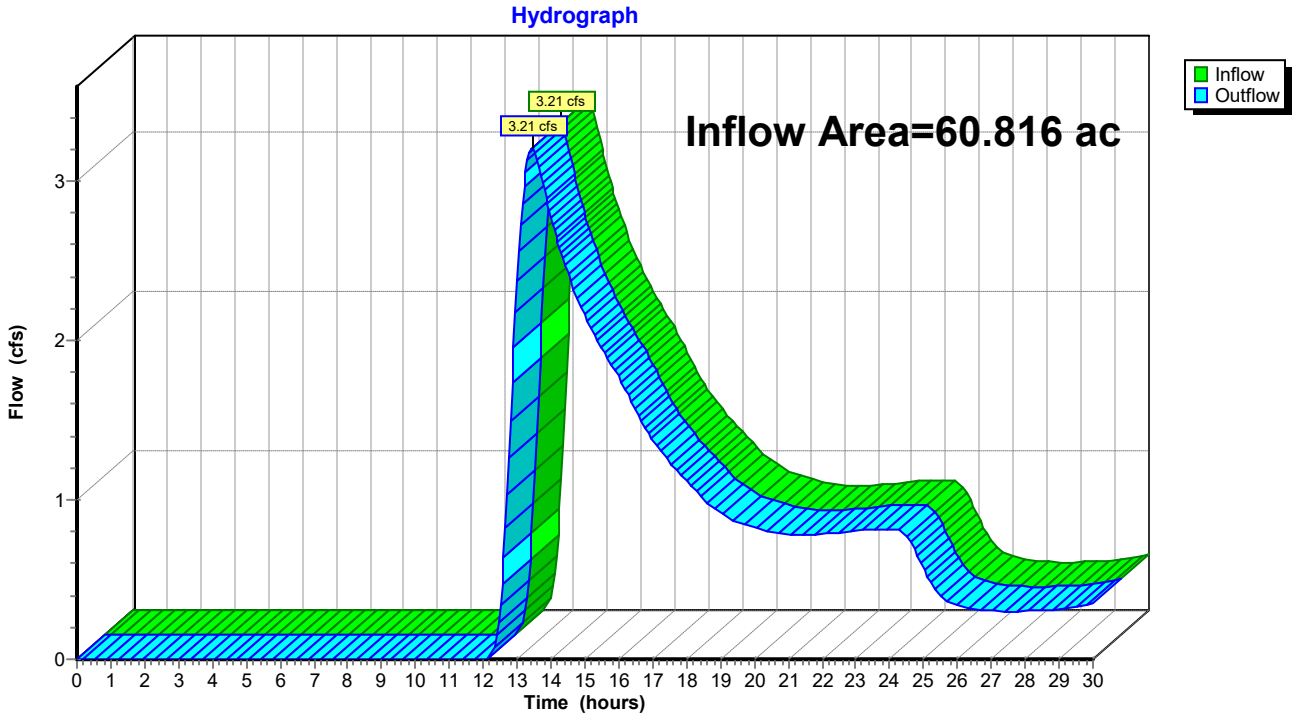
Summary for Reach DP2: DP#2

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 60.816 ac, 1.81% Impervious, Inflow Depth > 0.30" for 100-Year event
Inflow = 3.21 cfs @ 13.44 hrs, Volume= 1.517 af
Outflow = 3.21 cfs @ 13.44 hrs, Volume= 1.517 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP2: DP#2



Summary for Reach OL1: (new Reach)

[79] Warning: Submerged Pond DB11 Primary device # 2 OUTLET by 0.02'

Inflow Area = 17.764 ac, 1.27% Impervious, Inflow Depth > 0.21" for 100-Year event
Inflow = 0.37 cfs @ 24.10 hrs, Volume= 0.309 af
Outflow = 0.37 cfs @ 24.22 hrs, Volume= 0.306 af, Atten= 0%, Lag= 7.0 min

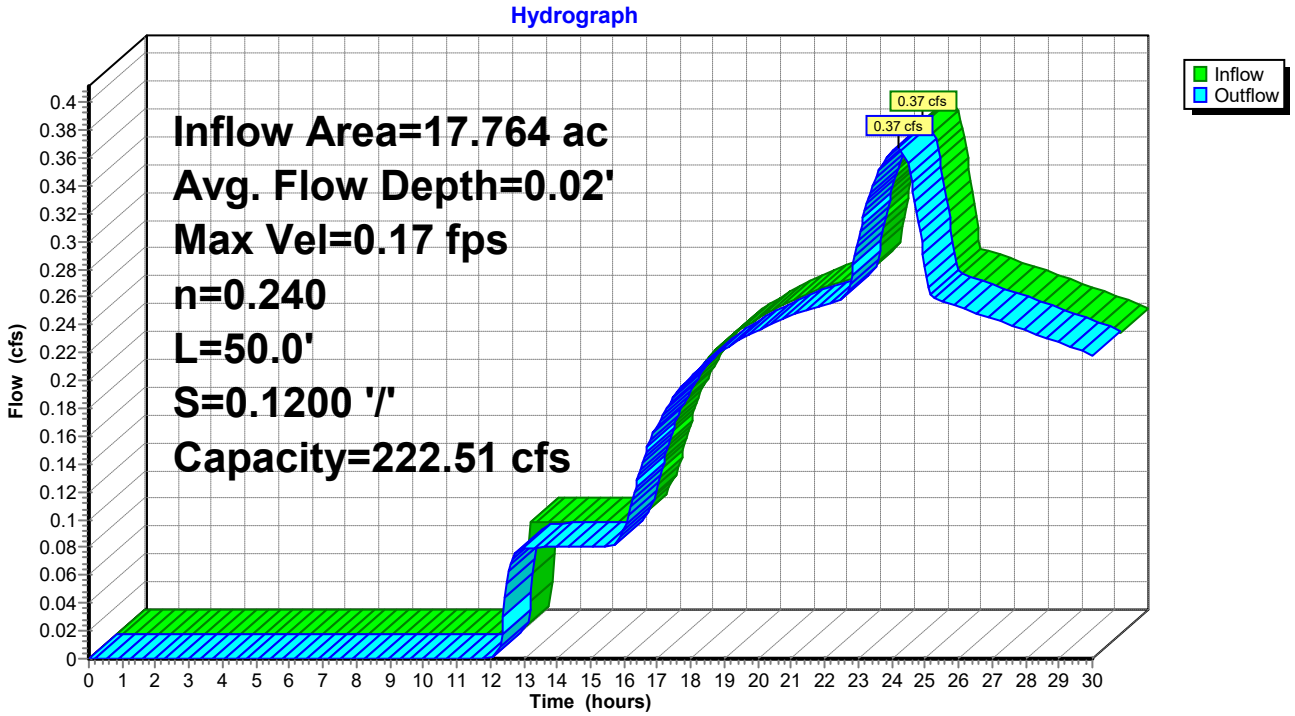
Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.17 fps, Min. Travel Time= 4.9 min
Avg. Velocity = 0.13 fps, Avg. Travel Time= 6.2 min

Peak Storage= 109 cf @ 24.14 hrs
Average Depth at Peak Storage= 0.02'
Bank-Full Depth= 1.00' Flow Area= 110.0 sf, Capacity= 222.51 cfs

100.00' x 1.00' deep channel, n= 0.240 Sheet flow over Dense Grass
Side Slope Z-value= 10.0 '/' Top Width= 120.00'
Length= 50.0' Slope= 0.1200 '/'
Inlet Invert= 878.00', Outlet Invert= 872.00'

‡

Reach OL1: (new Reach)



Summary for Reach OL121: WOODS-4

[79] Warning: Submerged Pond DB12 Primary device # 2 OUTLET by 0.06'

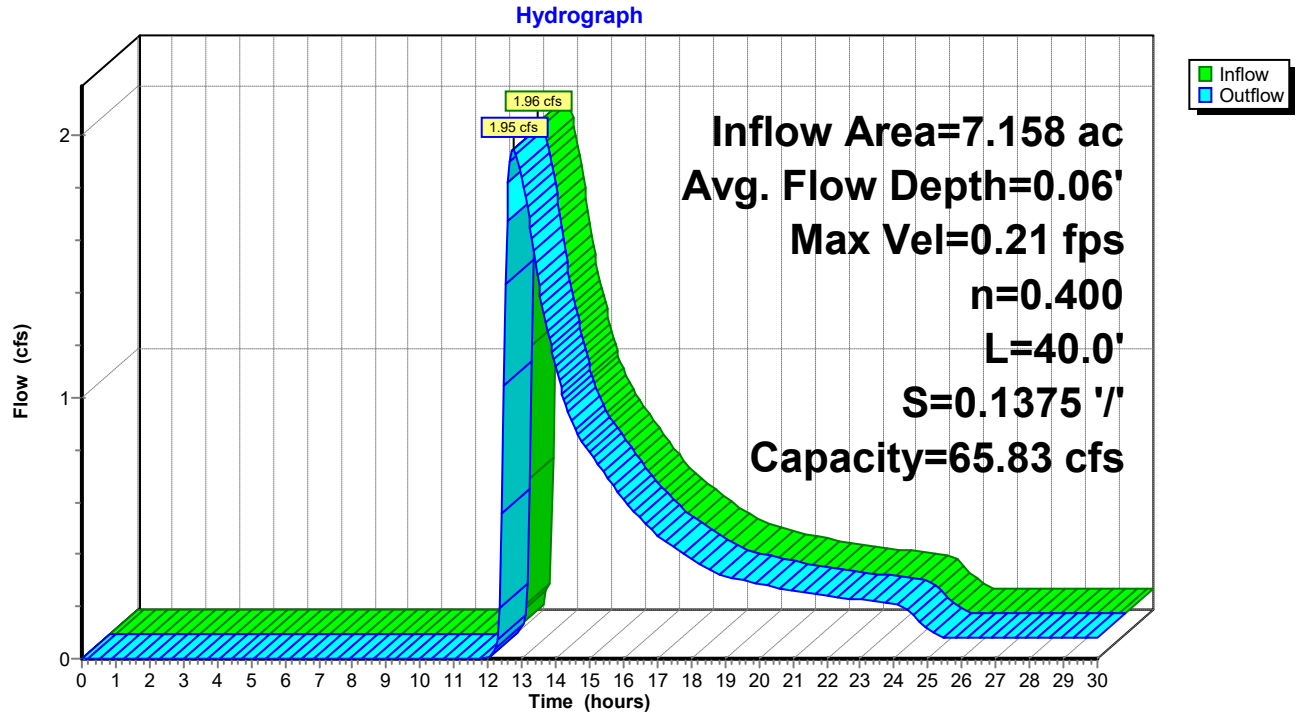
Inflow Area = 7.158 ac, 0.00% Impervious, Inflow Depth > 1.01" for 100-Year event
Inflow = 1.96 cfs @ 12.66 hrs, Volume= 0.604 af
Outflow = 1.95 cfs @ 12.75 hrs, Volume= 0.602 af, Atten= 0%, Lag= 5.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.21 fps, Min. Travel Time= 3.1 min
Avg. Velocity = 0.10 fps, Avg. Travel Time= 6.6 min

Peak Storage= 367 cf @ 12.70 hrs
Average Depth at Peak Storage= 0.06'
Bank-Full Depth= 0.50' Flow Area= 77.5 sf, Capacity= 65.83 cfs

150.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 160.00'
Length= 40.0' Slope= 0.1375 '/'
Inlet Invert= 881.50', Outlet Invert= 876.00'

Reach OL121: WOODS-4



Summary for Reach OL122: WOODS-4

[62] Hint: Exceeded Reach OL121 OUTLET depth by 0.05' @ 14.25 hrs

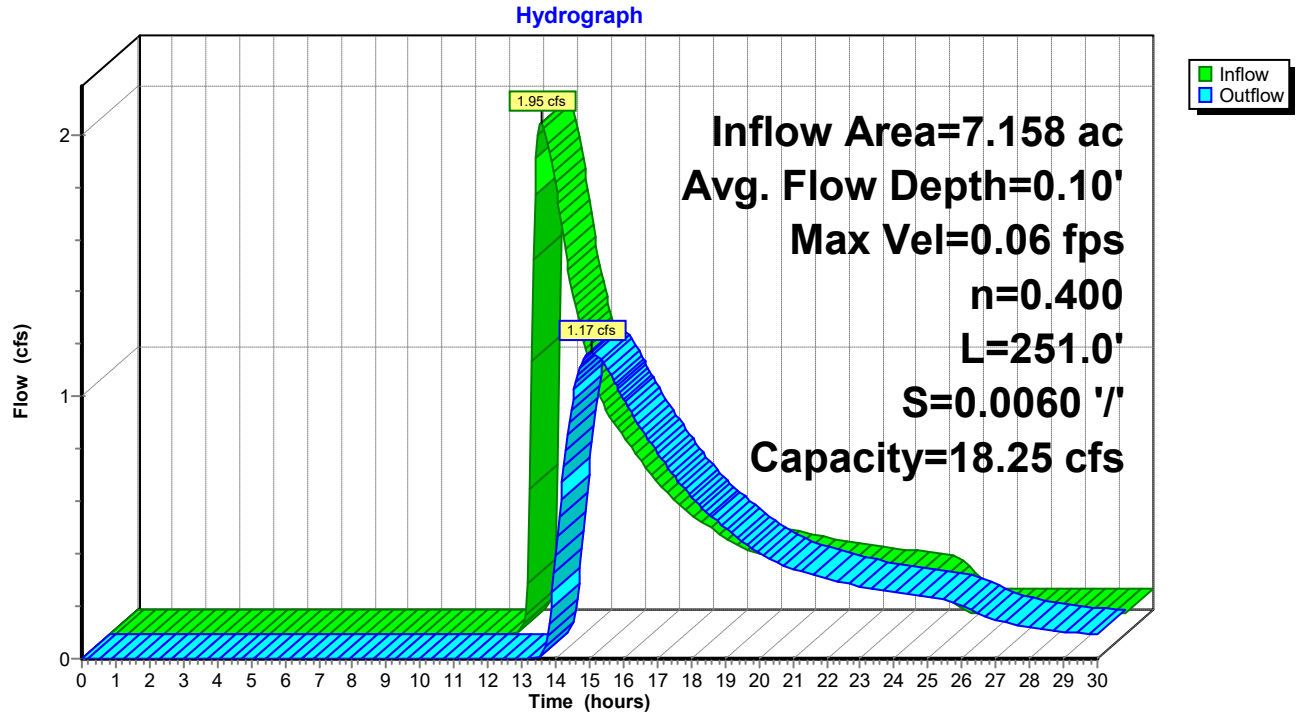
Inflow Area = 7.158 ac, 0.00% Impervious, Inflow Depth > 1.01" for 100-Year event
Inflow = 1.95 cfs @ 12.75 hrs, Volume= 0.602 af
Outflow = 1.17 cfs @ 15.06 hrs, Volume= 0.570 af, Atten= 40%, Lag= 138.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.06 fps, Min. Travel Time= 69.4 min
Avg. Velocity = 0.04 fps, Avg. Travel Time= 117.1 min

Peak Storage= 4,873 cf @ 13.90 hrs
Average Depth at Peak Storage= 0.10'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 18.25 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 251.0' Slope= 0.0060 '/'
Inlet Invert= 876.00', Outlet Invert= 874.50'

Reach OL122: WOODS-4



Summary for Reach OL123: GRASS

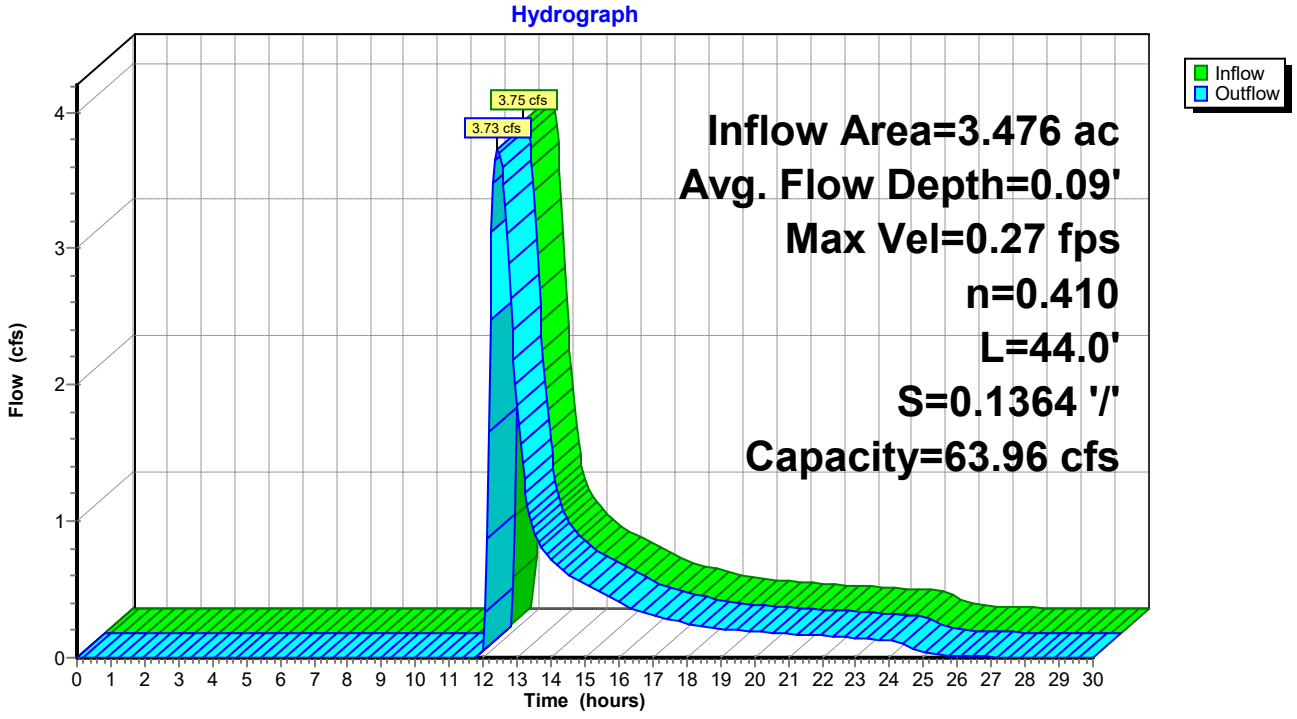
Inflow Area = 3.476 ac, 6.03% Impervious, Inflow Depth > 1.89" for 100-Year event
Inflow = 3.75 cfs @ 12.35 hrs, Volume= 0.547 af
Outflow = 3.73 cfs @ 12.43 hrs, Volume= 0.547 af, Atten= 1%, Lag= 4.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.27 fps, Min. Travel Time= 2.7 min
Avg. Velocity = 0.09 fps, Avg. Travel Time= 8.4 min

Peak Storage= 607 cf @ 12.38 hrs
Average Depth at Peak Storage= 0.09'
Bank-Full Depth= 0.50' Flow Area= 77.5 sf, Capacity= 63.96 cfs

150.00' x 0.50' deep channel, n= 0.410 Sheet flow over Bermuda Grass
Side Slope Z-value= 10.0 '/' Top Width= 160.00'
Length= 44.0' Slope= 0.1364 '/'
Inlet Invert= 887.00', Outlet Invert= 881.00'

Reach OL123: GRASS



Summary for Reach OL124: WOODS-4

[62] Hint: Exceeded Reach OL123 OUTLET depth by 0.02' @ 12.80 hrs

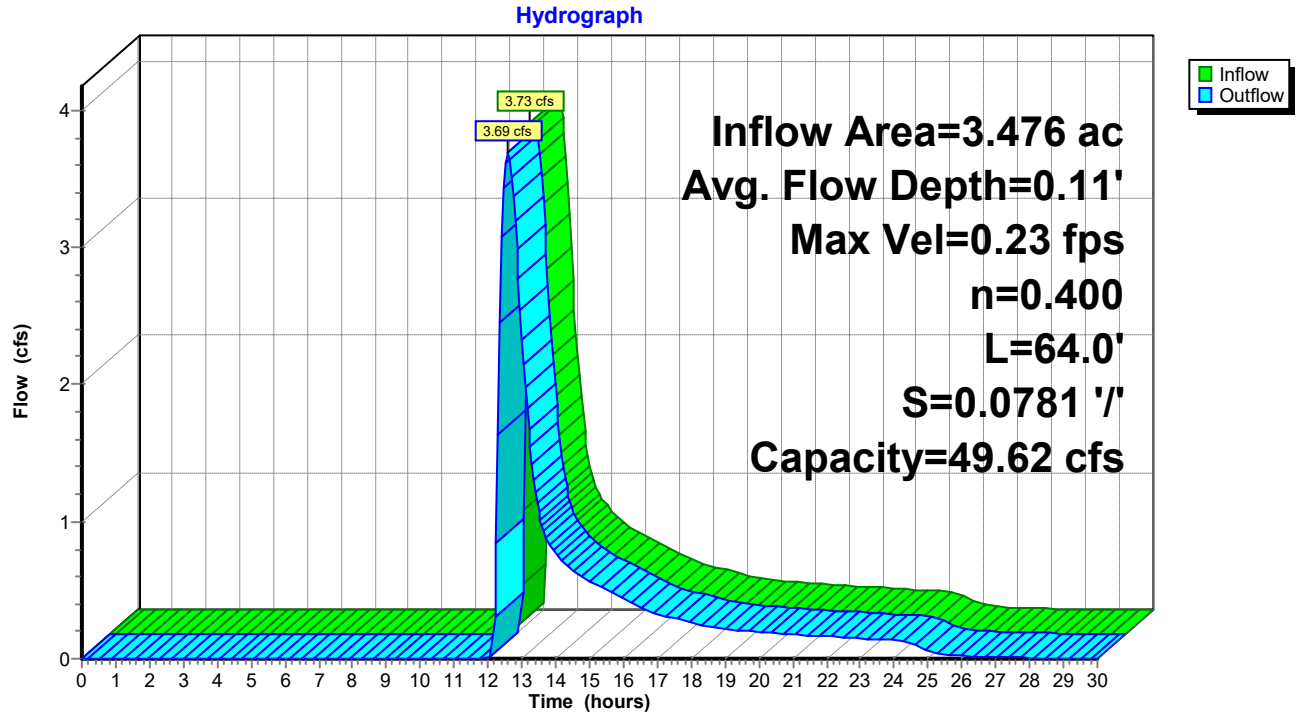
Inflow Area = 3.476 ac, 6.03% Impervious, Inflow Depth > 1.89" for 100-Year event
Inflow = 3.73 cfs @ 12.43 hrs, Volume= 0.547 af
Outflow = 3.69 cfs @ 12.57 hrs, Volume= 0.547 af, Atten= 1%, Lag= 8.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.23 fps, Min. Travel Time= 4.6 min
Avg. Velocity = 0.07 fps, Avg. Travel Time= 14.3 min

Peak Storage= 1,022 cf @ 12.49 hrs
Average Depth at Peak Storage= 0.11'
Bank-Full Depth= 0.50' Flow Area= 77.5 sf, Capacity= 49.62 cfs

150.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 160.00'
Length= 64.0' Slope= 0.0781 '/'
Inlet Invert= 881.00', Outlet Invert= 876.00'

Reach OL124: WOODS-4



Summary for Reach OL125: WOODS-4

[62] Hint: Exceeded Reach OL122 OUTLET depth by 0.04' @ 16.35 hrs
[62] Hint: Exceeded Reach OL126 OUTLET depth by 0.06' @ 16.10 hrs

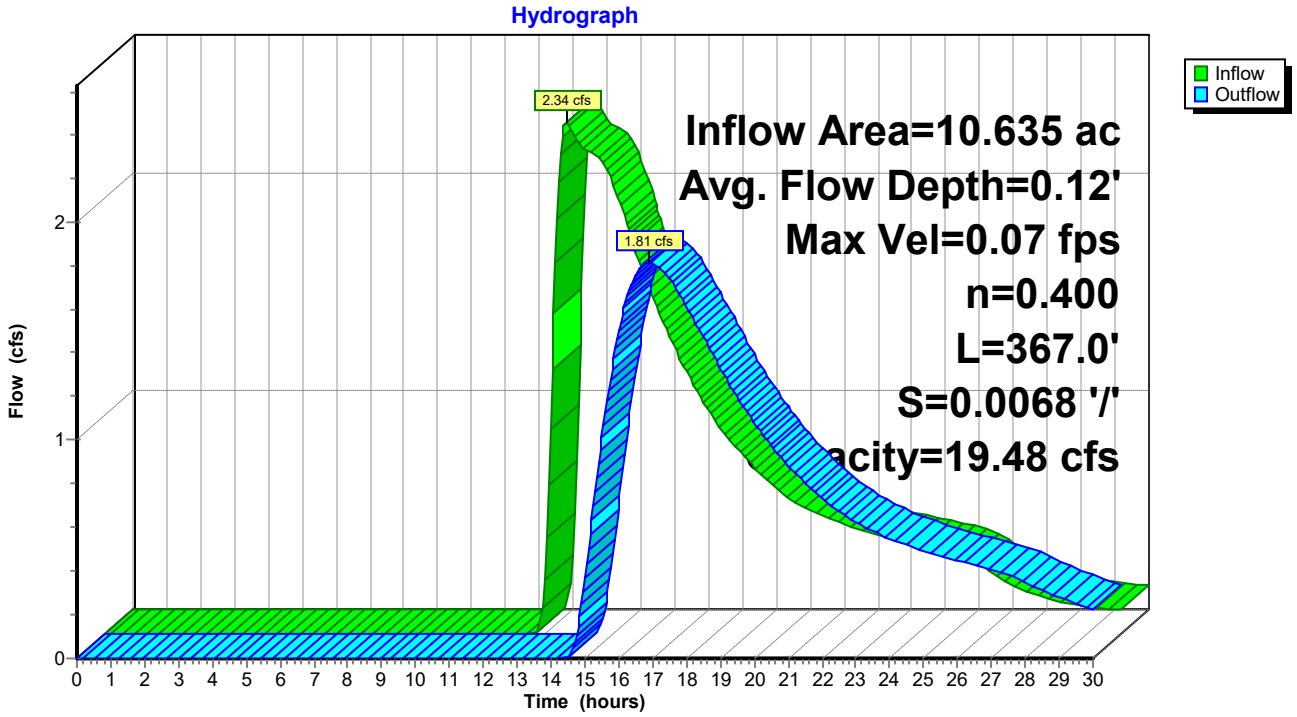
Inflow Area = 10.635 ac, 1.97% Impervious, Inflow Depth > 1.25" for 100-Year event
Inflow = 2.34 cfs @ 13.62 hrs, Volume= 1.111 af
Outflow = 1.81 cfs @ 16.90 hrs, Volume= 1.039 af, Atten= 22%, Lag= 197.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.07 fps, Min. Travel Time= 81.9 min
Avg. Velocity = 0.05 fps, Avg. Travel Time= 125.0 min

Peak Storage= 8,922 cf @ 15.54 hrs
Average Depth at Peak Storage= 0.12'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 19.48 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 367.0' Slope= 0.0068 '/'
Inlet Invert= 874.50', Outlet Invert= 872.00'

Reach OL125: WOODS-4



Summary for Reach OL126: WOODS-4

[62] Hint: Exceeded Reach OL124 OUTLET depth by 0.07' @ 13.25 hrs

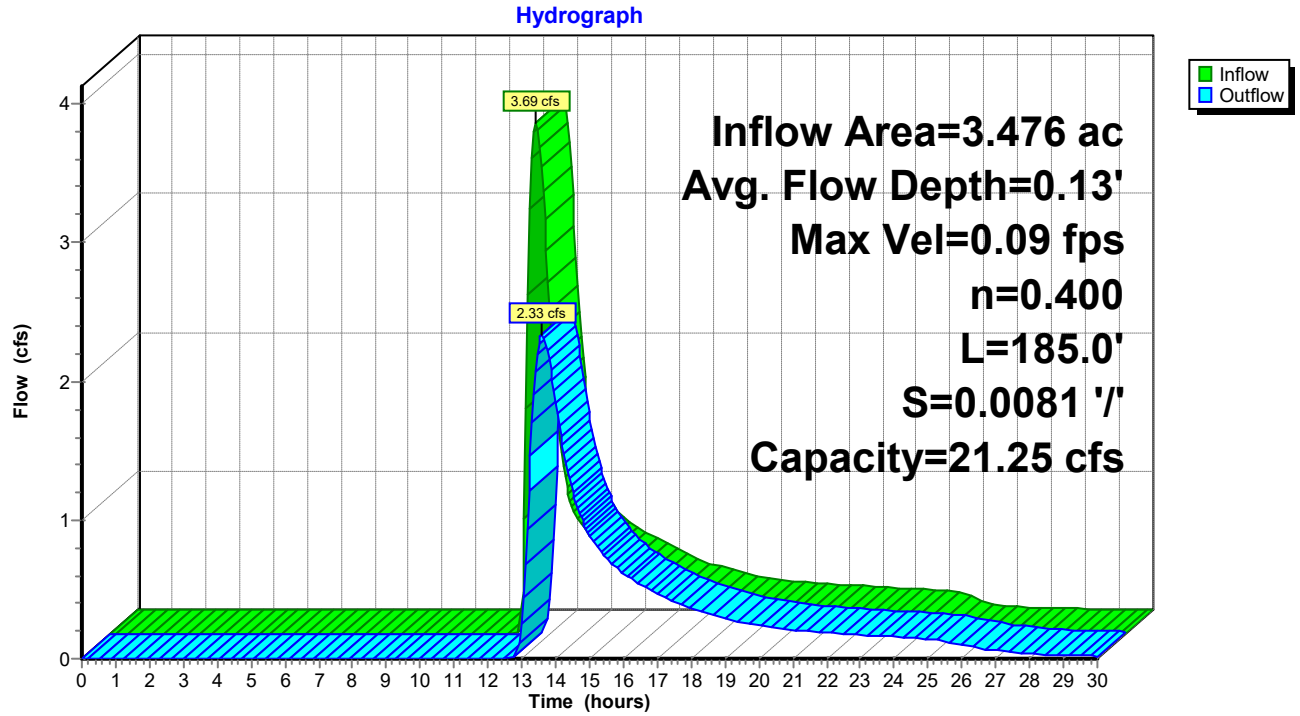
Inflow Area = 3.476 ac, 6.03% Impervious, Inflow Depth > 1.89" for 100-Year event
Inflow = 3.69 cfs @ 12.57 hrs, Volume= 0.547 af
Outflow = 2.33 cfs @ 13.59 hrs, Volume= 0.541 af, Atten= 37%, Lag= 61.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.09 fps, Min. Travel Time= 35.5 min
Avg. Velocity = 0.04 fps, Avg. Travel Time= 87.5 min

Peak Storage= 4,966 cf @ 13.00 hrs
Average Depth at Peak Storage= 0.13'
Bank-Full Depth= 0.50' Flow Area= 102.5 sf, Capacity= 21.25 cfs

200.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 210.00'
Length= 185.0' Slope= 0.0081 '/'
Inlet Invert= 876.00', Outlet Invert= 874.50'

Reach OL126: WOODS-4



Summary for Reach OL141: WOODS

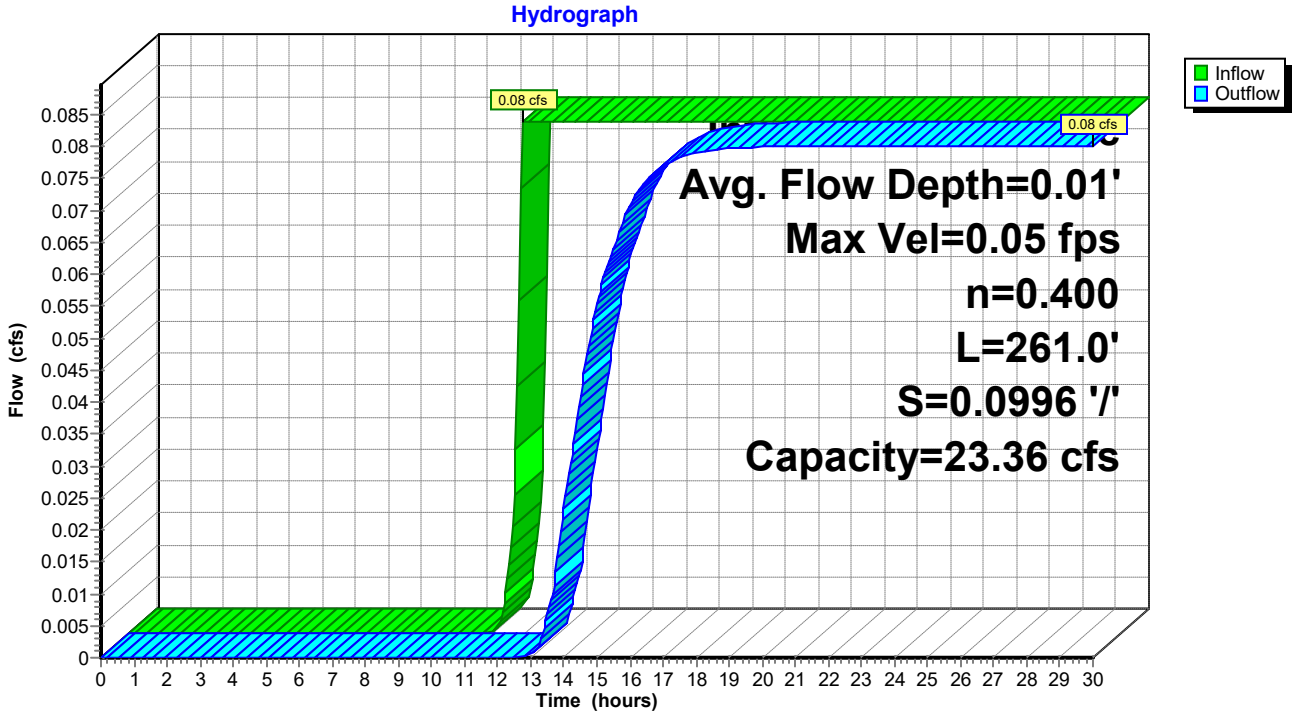
Inflow Area = 1.193 ac, 0.00% Impervious, Inflow Depth > 1.22" for 100-Year event
Inflow = 0.08 cfs @ 11.90 hrs, Volume= 0.121 af
Outflow = 0.08 cfs @ 30.00 hrs, Volume= 0.101 af, Atten= 0%, Lag= 1,086.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.05 fps, Min. Travel Time= 89.9 min
Avg. Velocity = 0.05 fps, Avg. Travel Time= 95.6 min

Peak Storage= 431 cf @ 30.00 hrs
Average Depth at Peak Storage= 0.01'
Bank-Full Depth= 0.25' Flow Area= 50.6 sf, Capacity= 23.36 cfs

200.00' x 0.25' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 205.00'
Length= 261.0' Slope= 0.0996 '/'
Inlet Invert= 888.00', Outlet Invert= 862.00'

Reach OL141: WOODS



Summary for Reach OL142: WOODS

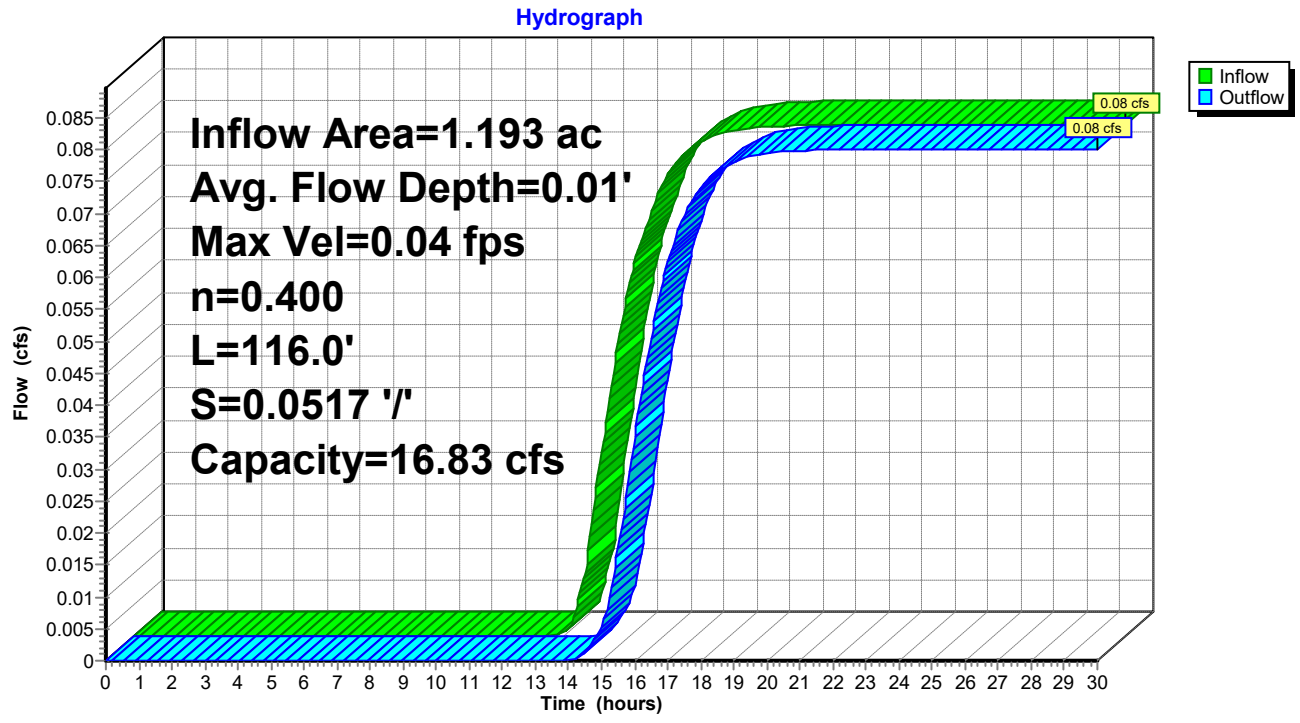
[61] Hint: Exceeded Reach OL141 outlet invert by 0.01' @ 30.00 hrs

Inflow Area = 1.193 ac, 0.00% Impervious, Inflow Depth > 1.02" for 100-Year event
Inflow = 0.08 cfs @ 30.00 hrs, Volume= 0.101 af
Outflow = 0.08 cfs @ 30.00 hrs, Volume= 0.091 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.04 fps, Min. Travel Time= 48.9 min
Avg. Velocity = 0.04 fps, Avg. Travel Time= 53.8 min

Peak Storage= 235 cf @ 30.00 hrs
Average Depth at Peak Storage= 0.01'
Bank-Full Depth= 0.25' Flow Area= 50.6 sf, Capacity= 16.83 cfs

200.00' x 0.25' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 10.0 '/' Top Width= 205.00'
Length= 116.0' Slope= 0.0517 '/'
Inlet Invert= 862.00', Outlet Invert= 856.00'



Summary for Reach SW1A: (new Reach)

Inflow Area = 2.547 ac, 0.00% Impervious, Inflow Depth = 1.18" for 100-Year event
Inflow = 2.21 cfs @ 12.20 hrs, Volume= 0.250 af
Outflow = 2.13 cfs @ 12.28 hrs, Volume= 0.250 af, Atten= 3%, Lag= 4.8 min

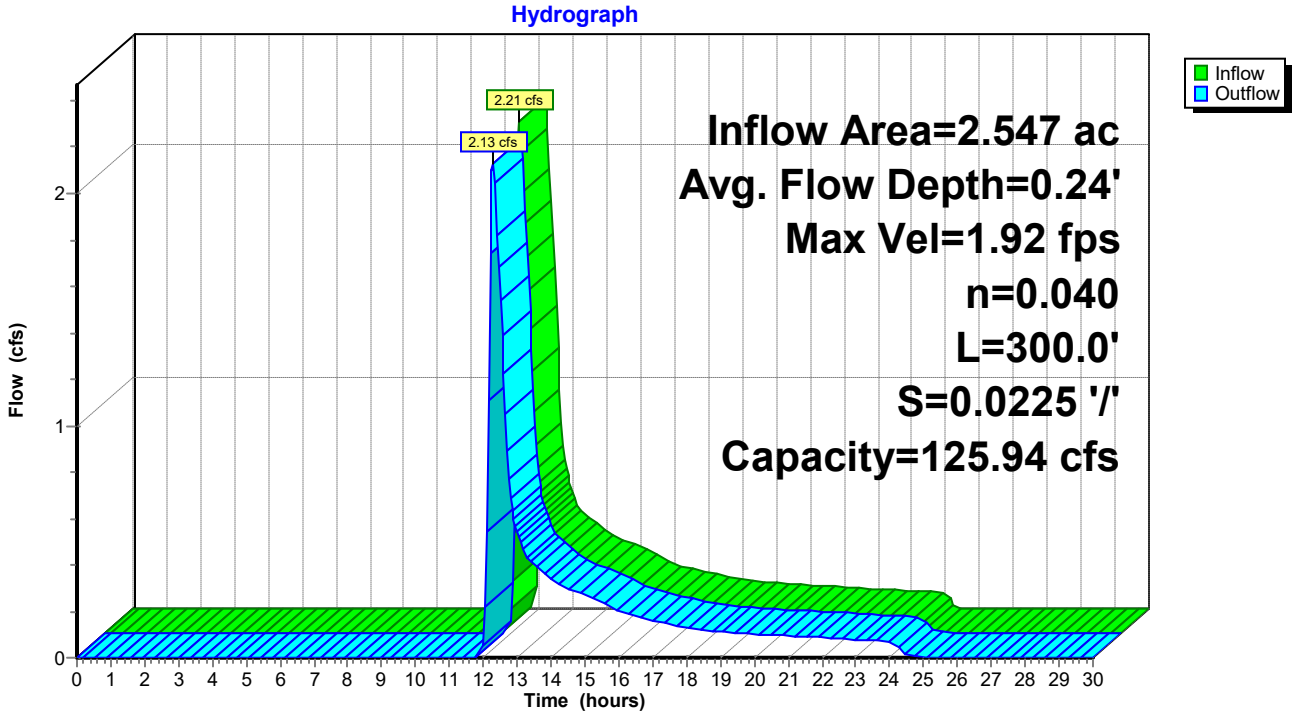
Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.92 fps, Min. Travel Time= 2.6 min
Avg. Velocity = 0.75 fps, Avg. Travel Time= 6.7 min

Peak Storage= 334 cf @ 12.24 hrs
Average Depth at Peak Storage= 0.24'
Bank-Full Depth= 2.00' Flow Area= 20.0 sf, Capacity= 125.94 cfs

4.00' x 2.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 3.0 '/' Top Width= 16.00'
Length= 300.0' Slope= 0.0225 '/'
Inlet Invert= 913.85', Outlet Invert= 907.10'

‡

Reach SW1A: (new Reach)



Summary for Reach SW1B: (new Reach)

[61] Hint: Exceeded Reach SW1A outlet invert by 0.17' @ 12.30 hrs

Inflow Area = 2.547 ac, 0.00% Impervious, Inflow Depth = 1.18" for 100-Year event
Inflow = 2.13 cfs @ 12.28 hrs, Volume= 0.250 af
Outflow = 2.09 cfs @ 12.33 hrs, Volume= 0.250 af, Atten= 2%, Lag= 3.0 min

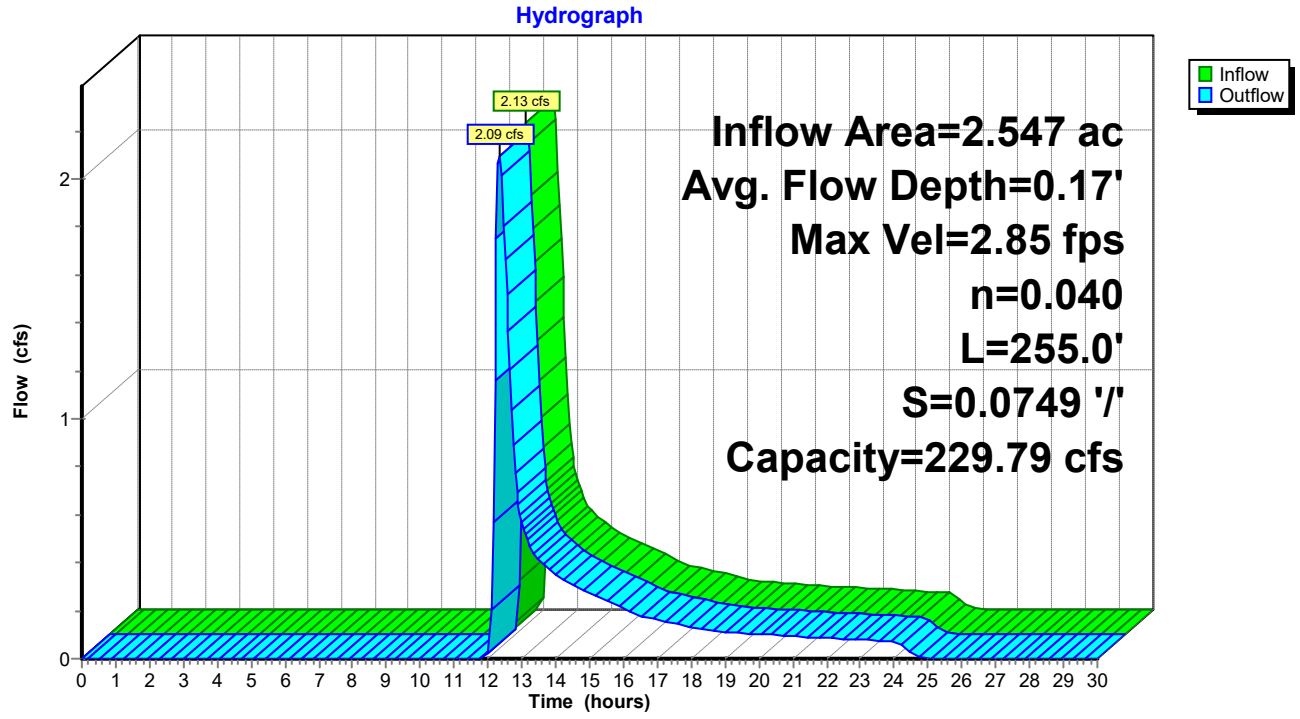
Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.85 fps, Min. Travel Time= 1.5 min
Avg. Velocity = 1.12 fps, Avg. Travel Time= 3.8 min

Peak Storage= 191 cf @ 12.30 hrs
Average Depth at Peak Storage= 0.17'
Bank-Full Depth= 2.00' Flow Area= 20.0 sf, Capacity= 229.79 cfs

4.00' x 2.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 3.0 '/' Top Width= 16.00'
Length= 255.0' Slope= 0.0749 '/'
Inlet Invert= 907.10', Outlet Invert= 888.00'

‡

Reach SW1B: (new Reach)



Summary for Reach SW2A: (new Reach)

Inflow Area = 11.353 ac, 1.93% Impervious, Inflow Depth = 0.70" for 100-Year event
Inflow = 3.36 cfs @ 12.52 hrs, Volume= 0.664 af
Outflow = 3.34 cfs @ 12.55 hrs, Volume= 0.664 af, Atten= 0%, Lag= 1.7 min

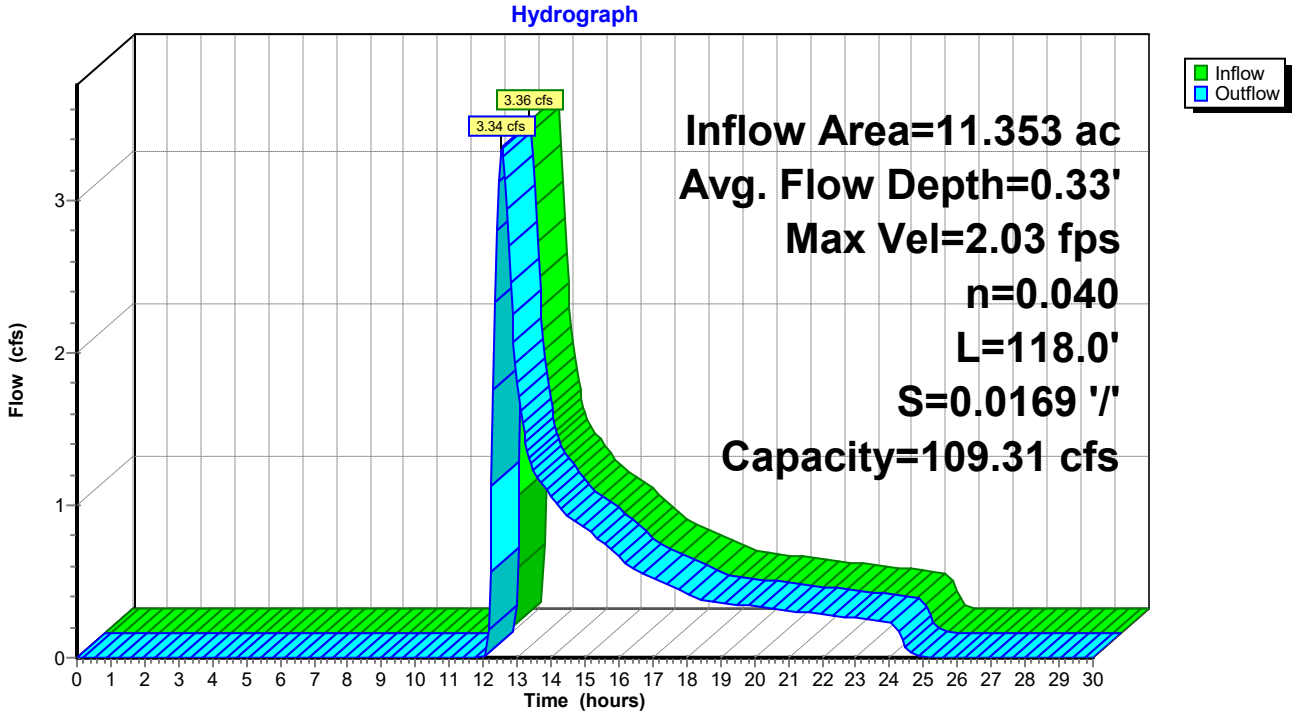
Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.03 fps, Min. Travel Time= 1.0 min
Avg. Velocity = 1.02 fps, Avg. Travel Time= 1.9 min

Peak Storage= 195 cf @ 12.53 hrs
Average Depth at Peak Storage= 0.33'
Bank-Full Depth= 2.00' Flow Area= 20.0 sf, Capacity= 109.31 cfs

4.00' x 2.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 3.0 '/' Top Width= 16.00'
Length= 118.0' Slope= 0.0169 '/'
Inlet Invert= 890.00', Outlet Invert= 888.00'

‡

Reach SW2A: (new Reach)



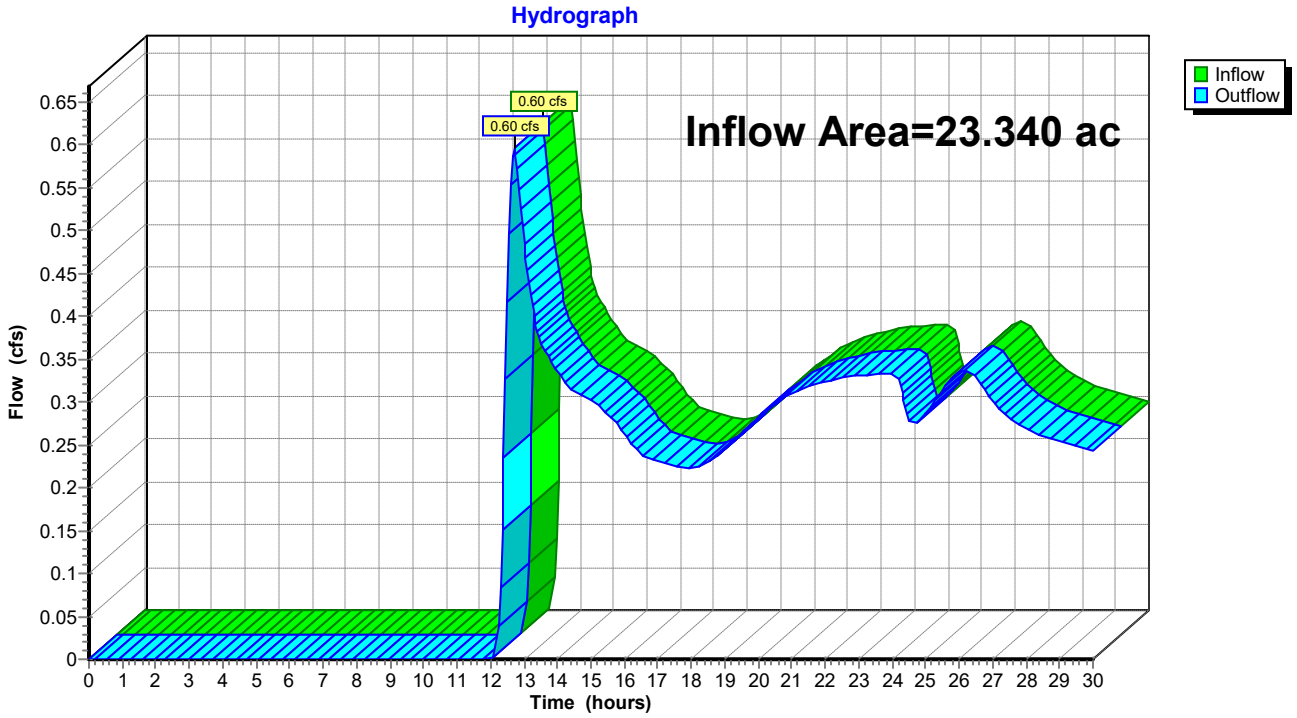
Summary for Reach WETLAND: WETLAND

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 23.340 ac, 0.97% Impervious, Inflow Depth > 0.22" for 100-Year event
Inflow = 0.60 cfs @ 12.70 hrs, Volume= 0.436 af
Outflow = 0.60 cfs @ 12.70 hrs, Volume= 0.436 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach WETLAND: WETLAND



Summary for Pond DB1: TO DP#1

[44] Hint: Outlet device #3 is below defined storage

Inflow Area = 2.133 ac, 0.00% Impervious, Inflow Depth = 1.80" for 100-Year event
Inflow = 3.83 cfs @ 12.12 hrs, Volume= 0.320 af
Outflow = 0.04 cfs @ 11.80 hrs, Volume= 0.061 af, Atten= 99%, Lag= 0.0 min
Primary = 0.04 cfs @ 11.80 hrs, Volume= 0.061 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 819.42' @ 24.10 hrs Surf.Area= 6,239 sf Storage= 12,122 cf

Plug-Flow detention time= 529.6 min calculated for 0.061 af (19% of inflow)
Center-of-Mass det. time= 376.7 min (1,249.7 - 873.1)

Volume	Invert	Avail.Storage	Storage Description
#1	817.00'	15,897 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

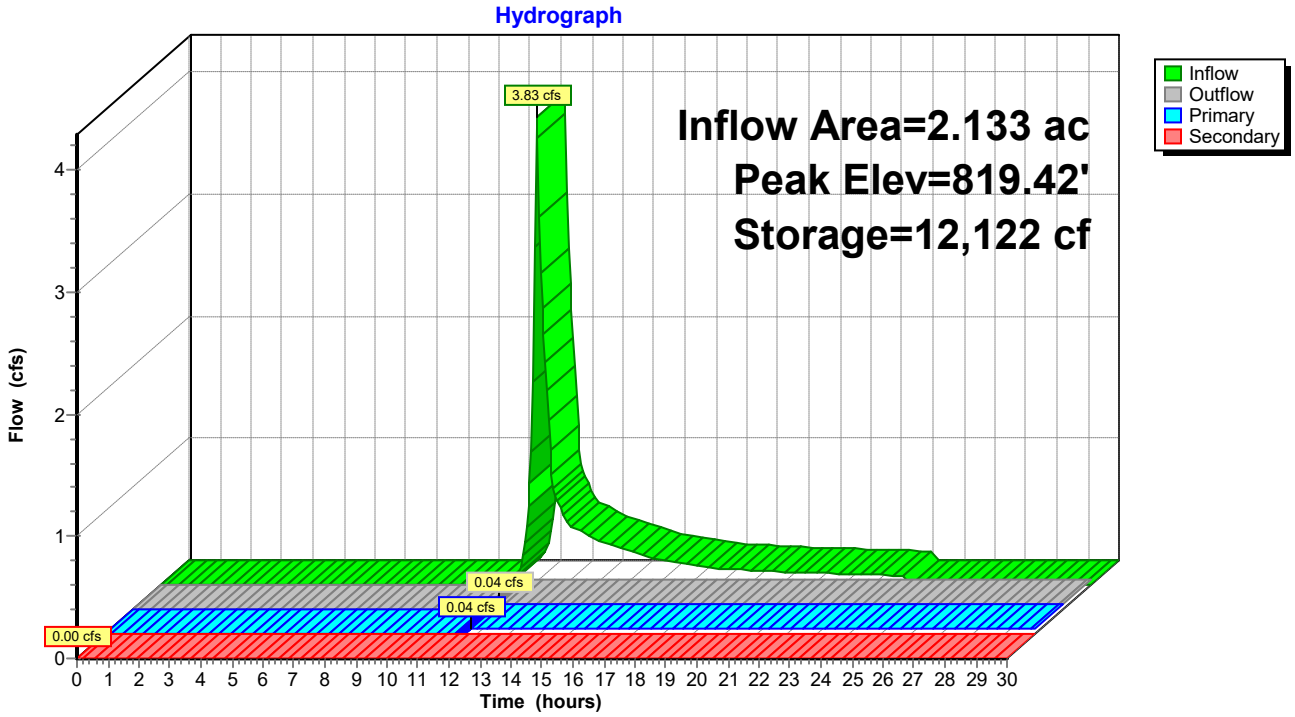
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
817.00	3,316	0	0
818.00	4,993	4,155	4,155
820.00	6,749	11,742	15,897

Device	Routing	Invert	Outlet Devices
#1	Secondary	819.50'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	815.40'	**6.0" Round Culvert** L= 42.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 815.40' / 815.00' S= 0.0095 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	815.40'	**Special & User-Defined** Head (feet) 0.00 1.00 2.00 3.00 4.00 6.00 8.00 Disch. (cfs) 0.000 0.040 0.040 0.040 0.040 0.040 0.040

Primary OutFlow Max=0.04 cfs @ 11.80 hrs HW=817.07' (Free Discharge)
2=Culvert (Passes 0.04 cfs of 0.89 cfs potential flow)
3=Special & User-Defined (Custom Controls 0.04 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=817.00' (Free Discharge)
1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond DB1: TO DP#1



Summary for Pond DB11: TO WETLAND

[44] Hint: Outlet device #3 is below defined storage
[79] Warning: Submerged Pond SB1 Primary device # 1 OUTLET by 1.53'

Inflow Area = 17.764 ac, 1.27% Impervious, Inflow Depth > 0.74" for 100-Year event
Inflow = 4.32 cfs @ 12.56 hrs, Volume= 1.093 af
Outflow = 0.37 cfs @ 24.10 hrs, Volume= 0.309 af, Atten= 91%, Lag= 692.3 min
Primary = 0.37 cfs @ 24.10 hrs, Volume= 0.309 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 884.53' @ 24.10 hrs Surf.Area= 17,764 sf Storage= 38,776 cf

Plug-Flow detention time= 591.7 min calculated for 0.308 af (28% of inflow)
Center-of-Mass det. time= 398.2 min (1,354.1 - 955.9)

Volume	Invert	Avail.Storage	Storage Description
#1	882.00'	67,293 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

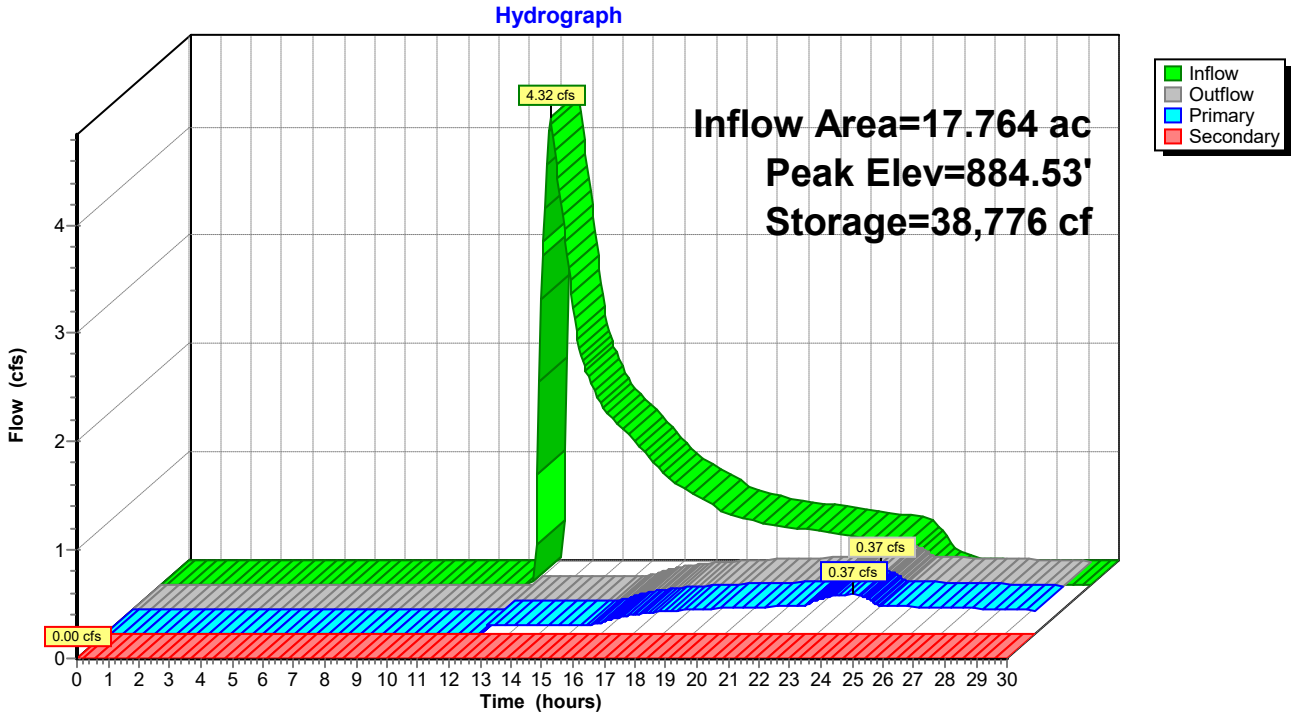
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
882.00	13,097	0	0
884.00	16,644	29,741	29,741
886.00	20,908	37,552	67,293

Device	Routing	Invert	Outlet Devices
#1	Secondary	885.00'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	879.37'	**12.0" Round Culvert** L= 36.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 879.37' / 878.00' S= 0.0381 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	879.70'	**Special & User-Defined** Head (feet) 0.00 1.00 15.00 Disch. (cfs) 0.000 0.080 0.080
#4	Device 2	883.80'	**3.0" Vert. Orifice/Grate** C= 0.600
#5	Device 2	884.50'	**2.1' long Sharp-Crested Rectangular Weir X 3.00** 2 End Contraction(s) 0.5' Crest Height

Primary OutFlow Max=0.35 cfs @ 24.10 hrs HW=884.53' (Free Discharge)
└**2=Culvert** (Passes 0.35 cfs of 6.44 cfs potential flow)
  ├**3=Special & User-Defined** (Custom Controls 0.08 cfs)
  ├**4=Orifice/Grate** (Orifice Controls 0.18 cfs @ 3.73 fps)
  └**5=Sharp-Crested Rectangular Weir** (Weir Controls 0.08 cfs @ 0.52 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=882.00' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond DB11: TO WETLAND



Summary for Pond DB12: TO DP12

[44] Hint: Outlet device #3 is below defined storage

Inflow Area = 7.158 ac, 0.00% Impervious, Inflow Depth = 1.09" for 100-Year event
Inflow = 5.54 cfs @ 12.19 hrs, Volume= 0.648 af
Outflow = 1.96 cfs @ 12.66 hrs, Volume= 0.604 af, Atten= 65%, Lag= 28.2 min
Primary = 1.96 cfs @ 12.66 hrs, Volume= 0.604 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 885.49' @ 12.66 hrs Surf.Area= 5,571 sf Storage= 6,845 cf

Plug-Flow detention time= 127.1 min calculated for 0.603 af (93% of inflow)
Center-of-Mass det. time= 93.7 min (1,000.5 - 906.8)

Volume	Invert	Avail.Storage	Storage Description
#1	884.00'	17,157 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

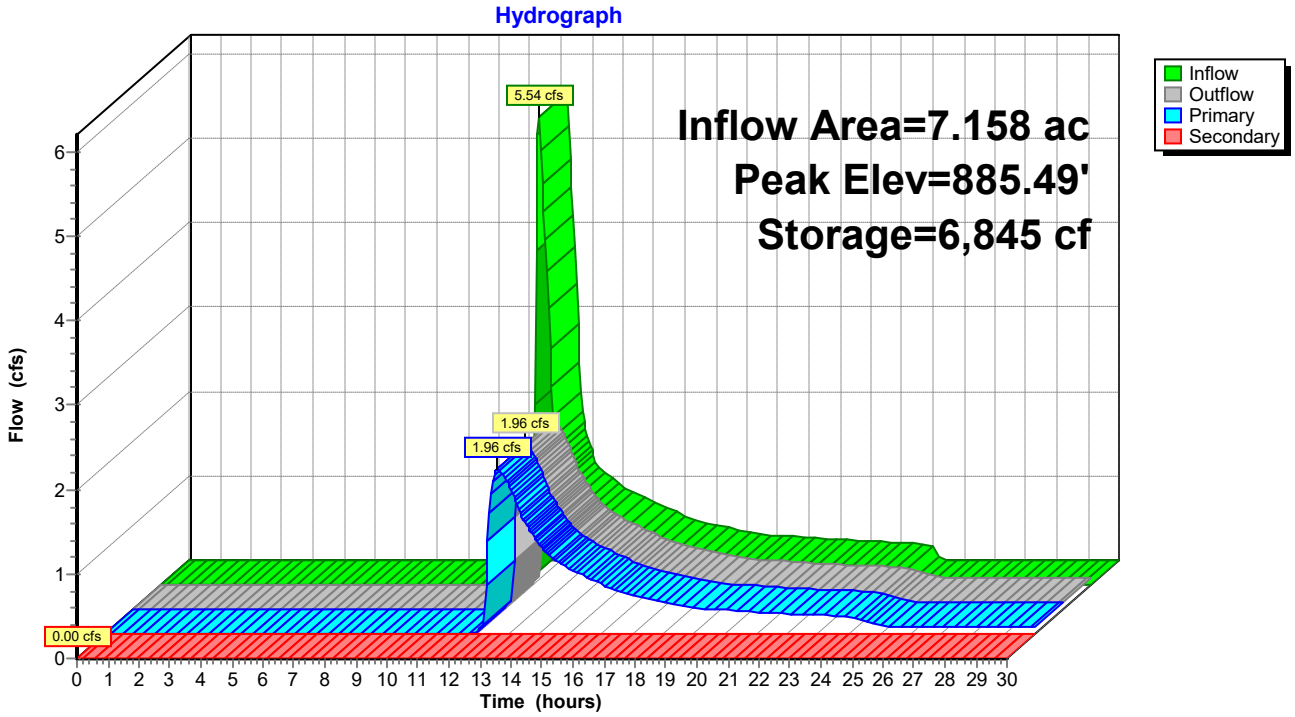
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
884.00	3,625	0	0
886.00	6,239	9,864	9,864
887.00	8,347	7,293	17,157

Device	Routing	Invert	Outlet Devices
#1	Secondary	886.00'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	882.10'	**12.0" Round Culvert** L= 28.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 882.10' / 881.50' S= 0.0214 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	882.30'	**Special & User-Defined** Head (feet) 0.00 1.00 15.00 Disch. (cfs) 0.000 0.080 0.080
#4	Device 2	884.80'	**6.0" Vert. Orifice/Grate X 3.00** C= 0.600
#5	Device 2	885.75'	**2.1' long Sharp-Crested Rectangular Weir X 3.00** 2 End Contraction(s) 0.5' Crest Height

Primary OutFlow Max=1.96 cfs @ 12.66 hrs HW=885.49' (Free Discharge)
└**2=Culvert** (Passes 1.96 cfs of 5.07 cfs potential flow)
  ├**3=Special & User-Defined** (Custom Controls 0.08 cfs)
  ├**4=Orifice/Grate** (Orifice Controls 1.88 cfs @ 3.19 fps)
  └**5=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=884.00' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond DB12: TO DP12



Summary for Pond DB13: TO DP#12

[62] Hint: Exceeded Reach DMH2 OUTLET depth by 1.12' @ 12.45 hrs

Inflow Area = 3.476 ac, 6.03% Impervious, Inflow Depth = 1.99" for 100-Year event
Inflow = 6.70 cfs @ 12.14 hrs, Volume= 0.575 af
Outflow = 3.75 cfs @ 12.35 hrs, Volume= 0.547 af, Atten= 44%, Lag= 12.7 min
Primary = 3.75 cfs @ 12.35 hrs, Volume= 0.547 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 893.51' @ 12.36 hrs Surf.Area= 4,611 sf Storage= 4,942 cf

Plug-Flow detention time= 55.6 min calculated for 0.546 af (95% of inflow)
Center-of-Mass det. time= 30.1 min (894.2 - 864.1)

Volume	Invert	Avail.Storage	Storage Description
#1	892.00'	14,332 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

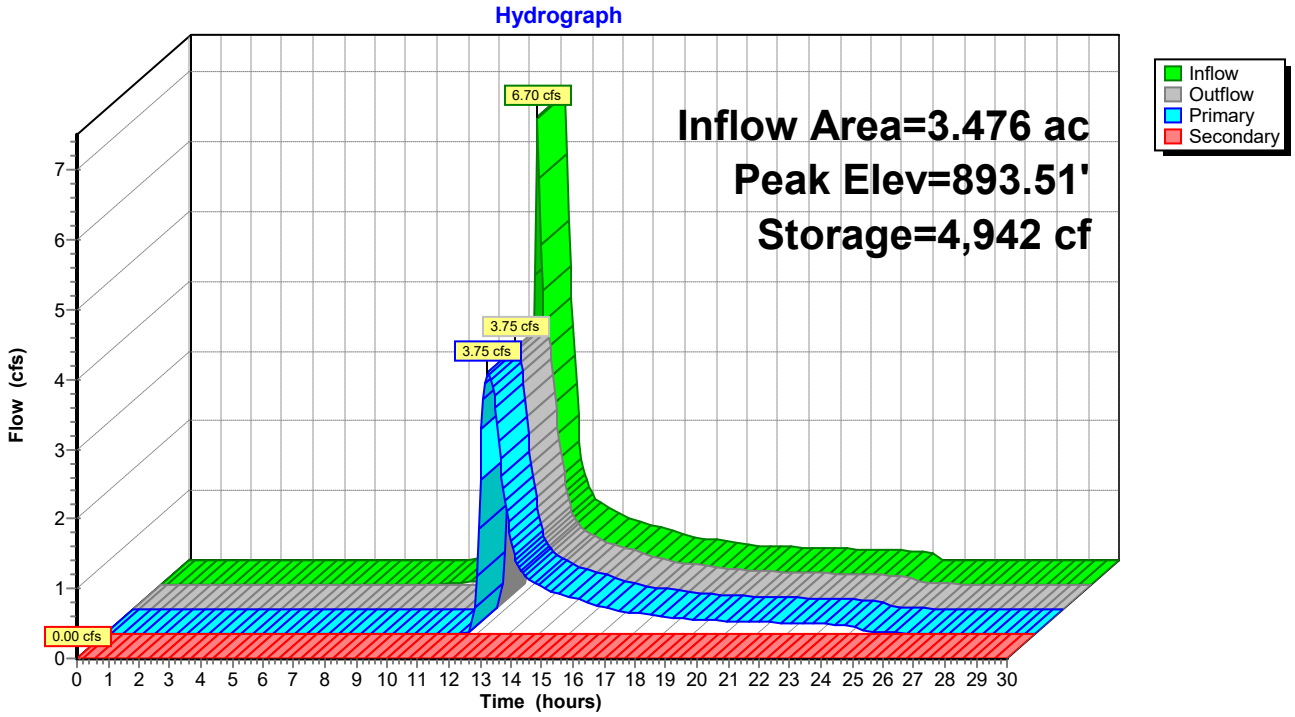
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
892.00	1,954	0	0
894.00	5,483	7,437	7,437
895.00	8,307	6,895	14,332

Device	Routing	Invert	Outlet Devices
#1	Secondary	894.00'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	890.00'	**12.0" Round Culvert** L= 38.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 890.00' / 888.00' S= 0.0526 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	893.50'	**2.6' long Sharp-Crested Rectangular Weir X 3.00** 2 End Contraction(s) 0.5' Crest Height
#4	Device 2	892.50'	**6.0" Vert. Orifice/Grate X 4.00** C= 0.600
#5	Device 2	893.00'	**3.0" Vert. Orifice/Grate X 3.00** C= 0.600

Primary OutFlow Max=3.73 cfs @ 12.35 hrs HW=893.51' (Free Discharge)
↑**2=Culvert** (Passes 3.73 cfs of 5.18 cfs potential flow)
↑**3=Sharp-Crested Rectangular Weir** (Weir Controls 0.01 cfs @ 0.24 fps)
4=Orifice/Grate (Orifice Controls 3.29 cfs @ 4.18 fps)
5=Orifice/Grate (Orifice Controls 0.44 cfs @ 2.97 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=892.00' (Free Discharge)
↑**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond DB13: TO DP#12



Summary for Pond DB14: TO DP#14

[44] Hint: Outlet device #3 is below defined storage

Inflow Area = 1.193 ac, 0.00% Impervious, Inflow Depth = 1.88" for 100-Year event
Inflow = 2.42 cfs @ 12.10 hrs, Volume= 0.187 af
Outflow = 0.08 cfs @ 11.90 hrs, Volume= 0.121 af, Atten= 97%, Lag= 0.0 min
Primary = 0.08 cfs @ 11.90 hrs, Volume= 0.121 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 903.78' @ 17.80 hrs Surf.Area= 3,637 sf Storage= 5,085 cf

Plug-Flow detention time= 497.8 min calculated for 0.121 af (65% of inflow)
Center-of-Mass det. time= 383.1 min (1,251.7 - 868.6)

Volume	Invert	Avail.Storage	Storage Description
#1	902.00'	15,766 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

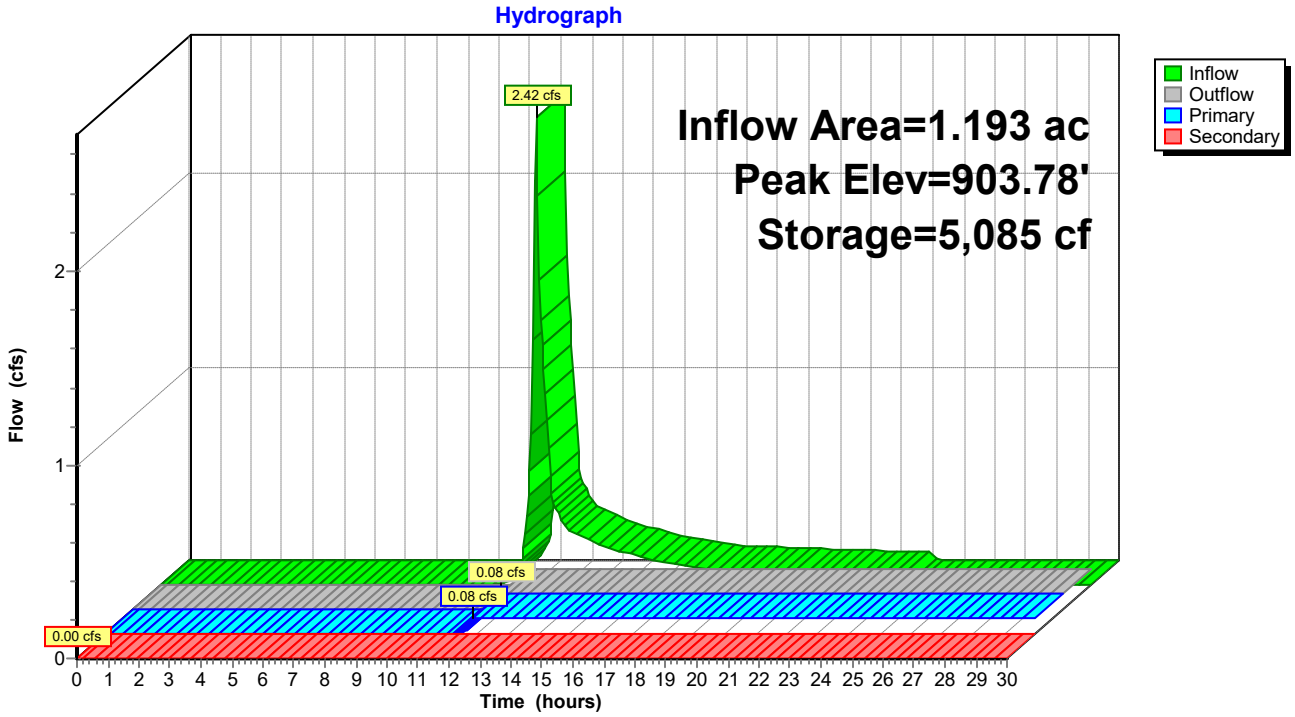
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
902.00	2,080	0	0
904.00	3,830	5,910	5,910
906.00	6,026	9,856	15,766

Device	Routing	Invert	Outlet Devices
#1	Secondary	905.00'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	900.30'	**4.0" Round Culvert** L= 50.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 900.30' / 898.00' S= 0.0460 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.09 sf
#3	Device 2	900.40'	**Special & User-Defined** Head (feet) 0.00 1.00 15.00 Disch. (cfs) 0.000 0.080 0.080

Primary OutFlow Max=0.08 cfs @ 11.90 hrs HW=902.15' (Free Discharge)
2=Culvert (Passes 0.08 cfs of 0.43 cfs potential flow)
3=Special & User-Defined (Custom Controls 0.08 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=902.00' (Free Discharge)
1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond DB14: TO DP#14



Summary for Pond DB2: TO DP#1

[44] Hint: Outlet device #4 is below defined storage

Inflow Area = 5.809 ac, 0.00% Impervious, Inflow Depth = 1.99" for 100-Year event
Inflow = 11.01 cfs @ 12.15 hrs, Volume= 0.965 af
Outflow = 6.34 cfs @ 12.38 hrs, Volume= 0.831 af, Atten= 42%, Lag= 13.3 min
Primary = 6.34 cfs @ 12.38 hrs, Volume= 0.831 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 809.00' @ 12.38 hrs Surf.Area= 6,565 sf Storage= 9,645 cf

Plug-Flow detention time= 116.8 min calculated for 0.831 af (86% of inflow)
Center-of-Mass det. time= 53.8 min (922.8 - 869.0)

Volume	Invert	Avail.Storage	Storage Description
#1	807.00'	17,094 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

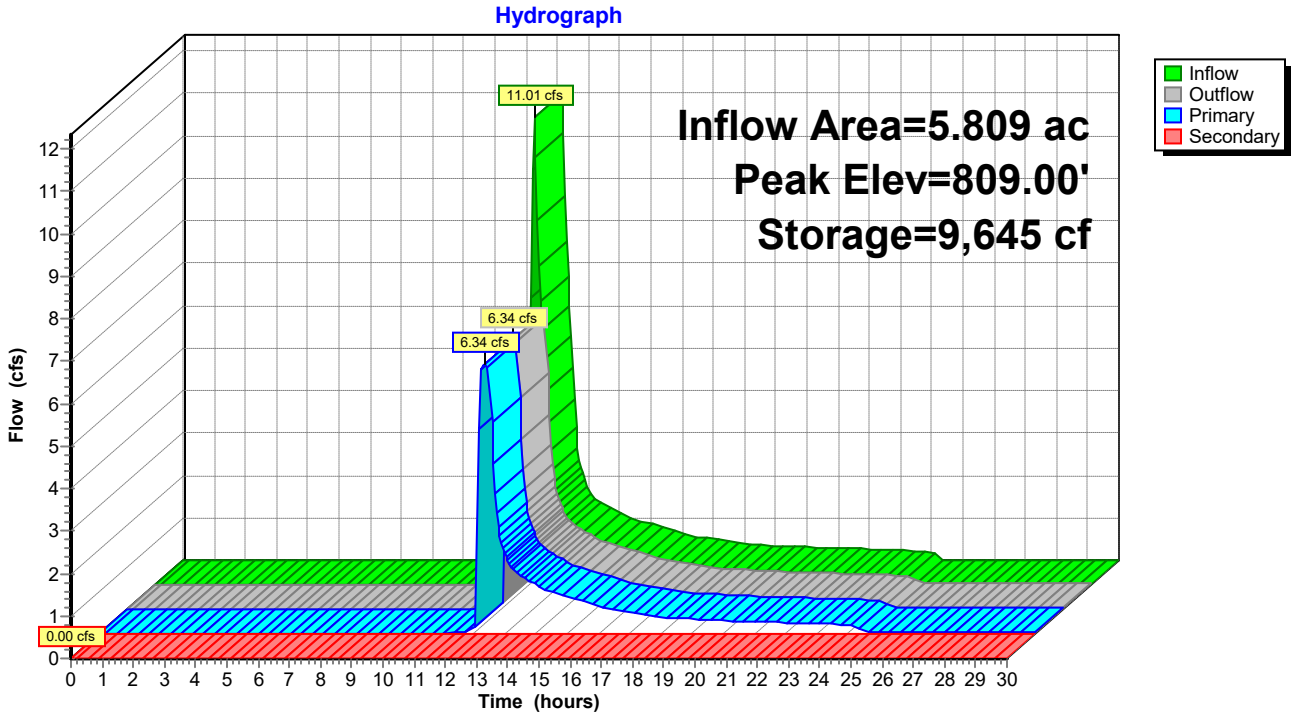
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
807.00	3,109	0	0
808.00	4,812	3,961	3,961
810.00	8,321	13,133	17,094

Device	Routing	Invert	Outlet Devices
#1	Secondary	809.00'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	806.30'	**12.0" Round Culvert** L= 29.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 806.30' / 806.00' S= 0.0103 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf
#3	Device 2	808.50'	**2.6' long Sharp-Crested Rectangular Weir X 3.00** 2 End Contraction(s) 0.5' Crest Height
#4	Device 2	806.00'	**Special & User-Defined** Head (feet) 0.00 1.00 2.00 3.00 4.00 6.00 8.00 Disch. (cfs) 0.000 0.040 0.040 0.040 0.040 0.040 0.040

Primary OutFlow Max=6.34 cfs @ 12.38 hrs HW=809.00' (Free Discharge)
└**2=Culvert** (Barrel Controls 6.34 cfs @ 8.07 fps)
  ├**3=Sharp-Crested Rectangular Weir** (Passes < 9.63 cfs potential flow)
  └**4=Special & User-Defined** (Passes < 0.04 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=807.00' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond DB2: TO DP#1



Summary for Pond DB3: TO DP#2

[44] Hint: Outlet device #3 is below defined storage

Inflow Area = 1.471 ac, 0.00% Impervious, Inflow Depth = 0.90" for 100-Year event
Inflow = 0.93 cfs @ 12.14 hrs, Volume= 0.111 af
Outflow = 0.55 cfs @ 12.15 hrs, Volume= 0.111 af, Atten= 41%, Lag= 0.4 min
Primary = 0.55 cfs @ 12.15 hrs, Volume= 0.111 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 856.11' @ 12.45 hrs Surf.Area= 3,580 sf Storage= 382 cf

Plug-Flow detention time= 6.0 min calculated for 0.111 af (100% of inflow)
Center-of-Mass det. time= 5.9 min (921.1 - 915.1)

Volume	Invert	Avail.Storage	Storage Description
#1	856.00'	8,610 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

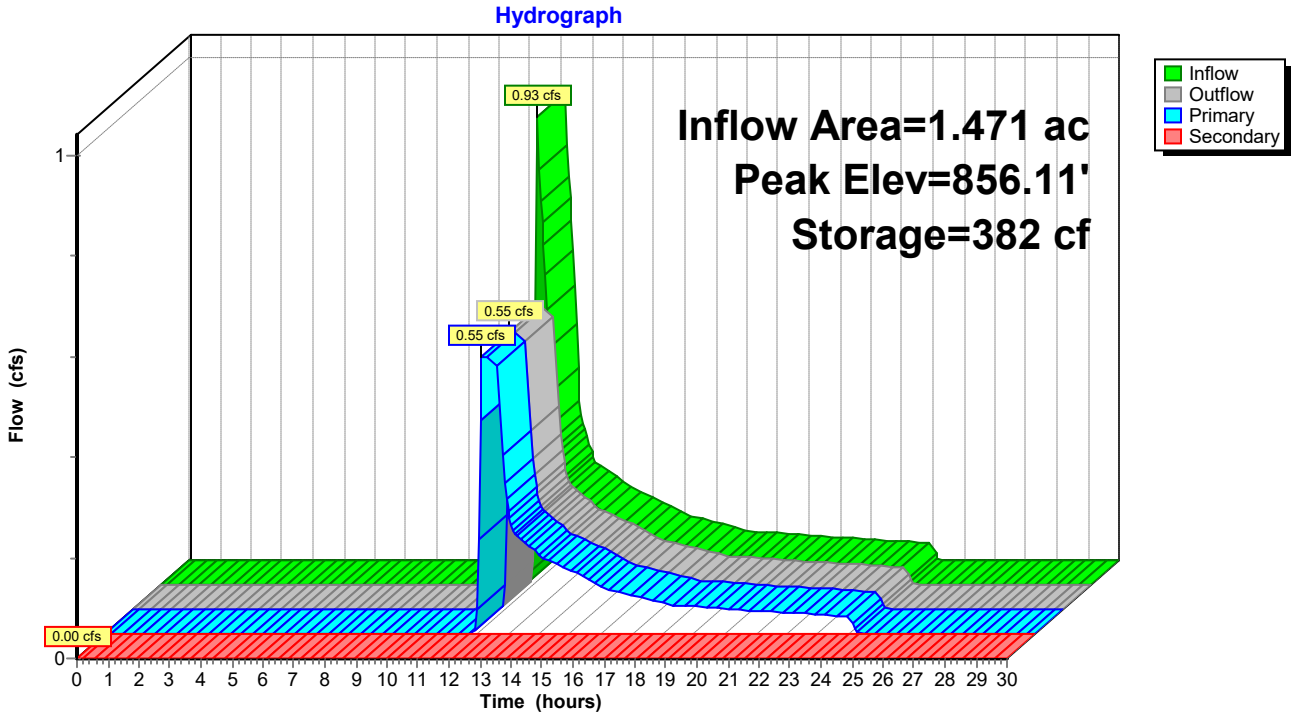
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
856.00	3,492	0	0
858.00	5,118	8,610	8,610

Device	Routing	Invert	Outlet Devices
#1	Secondary	857.00'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	854.50'	**6.0" Round Culvert** L= 46.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 854.50' / 854.00' S= 0.0109 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	854.50'	**Special & User-Defined** Head (feet) 0.00 1.00 2.00 3.00 4.00 6.00 Disch. (cfs) 0.000 0.550 0.550 0.550 0.550 0.550

Primary OutFlow Max=0.55 cfs @ 12.15 hrs HW=856.06' (Free Discharge)
↑**2=Culvert** (Passes 0.55 cfs of 0.85 cfs potential flow)
↑**3=Special & User-Defined** (Custom Controls 0.55 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=856.00' (Free Discharge)
↑**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond DB3: TO DP#2



Summary for Pond DB4: TO DP#2

[44] Hint: Outlet device #3 is below defined storage

Inflow Area = 1.454 ac, 3.28% Impervious, Inflow Depth = 0.72" for 100-Year event
Inflow = 0.60 cfs @ 12.14 hrs, Volume= 0.088 af
Outflow = 0.50 cfs @ 12.34 hrs, Volume= 0.088 af, Atten= 16%, Lag= 11.9 min
Primary = 0.50 cfs @ 12.34 hrs, Volume= 0.088 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 888.03' @ 12.34 hrs Surf.Area= 5,794 sf Storage= 190 cf

Plug-Flow detention time= 6.3 min calculated for 0.088 af (100% of inflow)
Center-of-Mass det. time= 6.3 min (935.1 - 928.8)

Volume	Invert	Avail.Storage	Storage Description
#1	888.00'	15,032 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

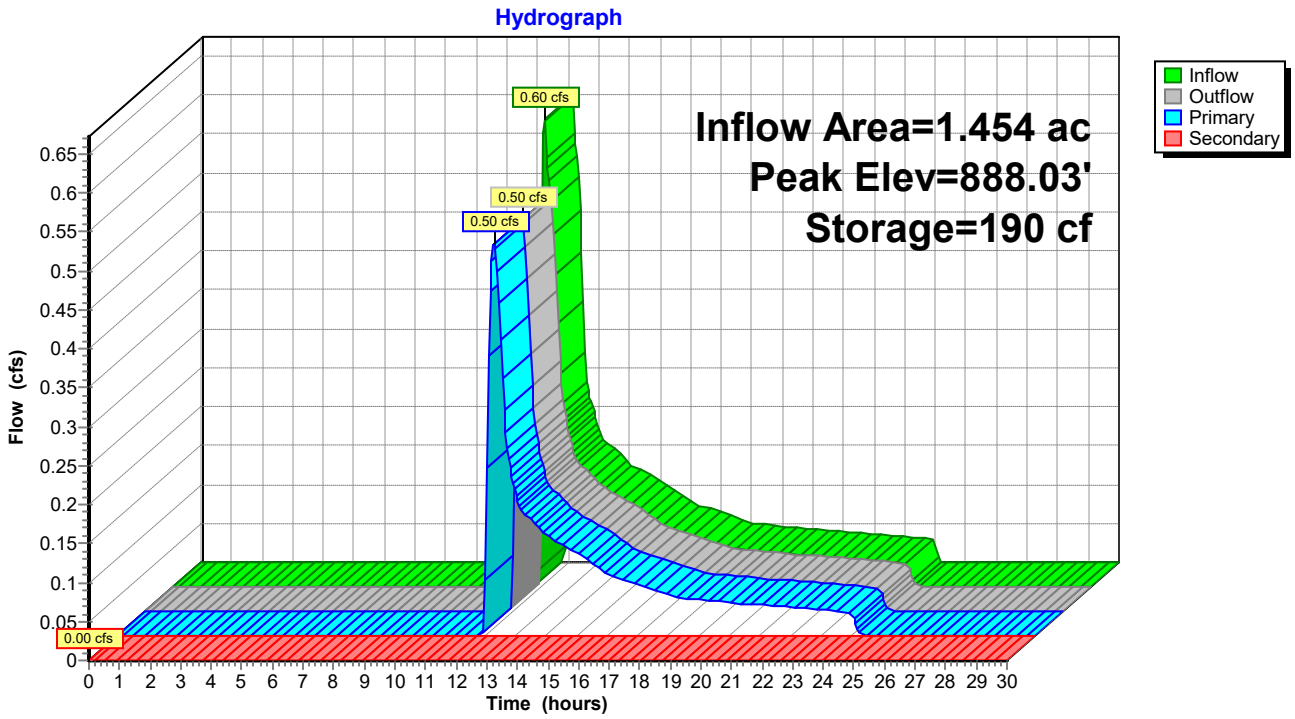
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
888.00	5,735	0	0
890.00	9,297	15,032	15,032

Device	Routing	Invert	Outlet Devices
#1	Secondary	889.00'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	885.60'	**6.0" Round Culvert** L= 34.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 885.60' / 885.00' S= 0.0176 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	885.60'	**Special & User-Defined** Head (feet) 0.00 1.00 2.00 3.00 4.00 6.00 Disch. (cfs) 0.000 0.550 0.550 0.550 0.550 0.550

Primary OutFlow Max=0.55 cfs @ 12.34 hrs HW=888.03' (Free Discharge)
└**2=Culvert** (Passes 0.55 cfs of 1.10 cfs potential flow)
└**3=Special & User-Defined** (Custom Controls 0.55 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=888.00' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond DB4: TO DP#2



Summary for Pond DB5: TO DP#2

[44] Hint: Outlet device #3 is below defined storage

Inflow Area = 1.032 ac, 3.16% Impervious, Inflow Depth = 0.92" for 100-Year event
Inflow = 0.72 cfs @ 12.11 hrs, Volume= 0.079 af
Outflow = 0.55 cfs @ 12.10 hrs, Volume= 0.079 af, Atten= 24%, Lag= 0.0 min
Primary = 0.55 cfs @ 12.10 hrs, Volume= 0.079 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 866.08' @ 12.22 hrs Surf.Area= 1,300 sf Storage= 100 cf

Plug-Flow detention time= 1.9 min calculated for 0.079 af (100% of inflow)
Center-of-Mass det. time= 1.9 min (914.7 - 912.9)

Volume	Invert	Avail.Storage	Storage Description
#1	866.00'	4,204 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

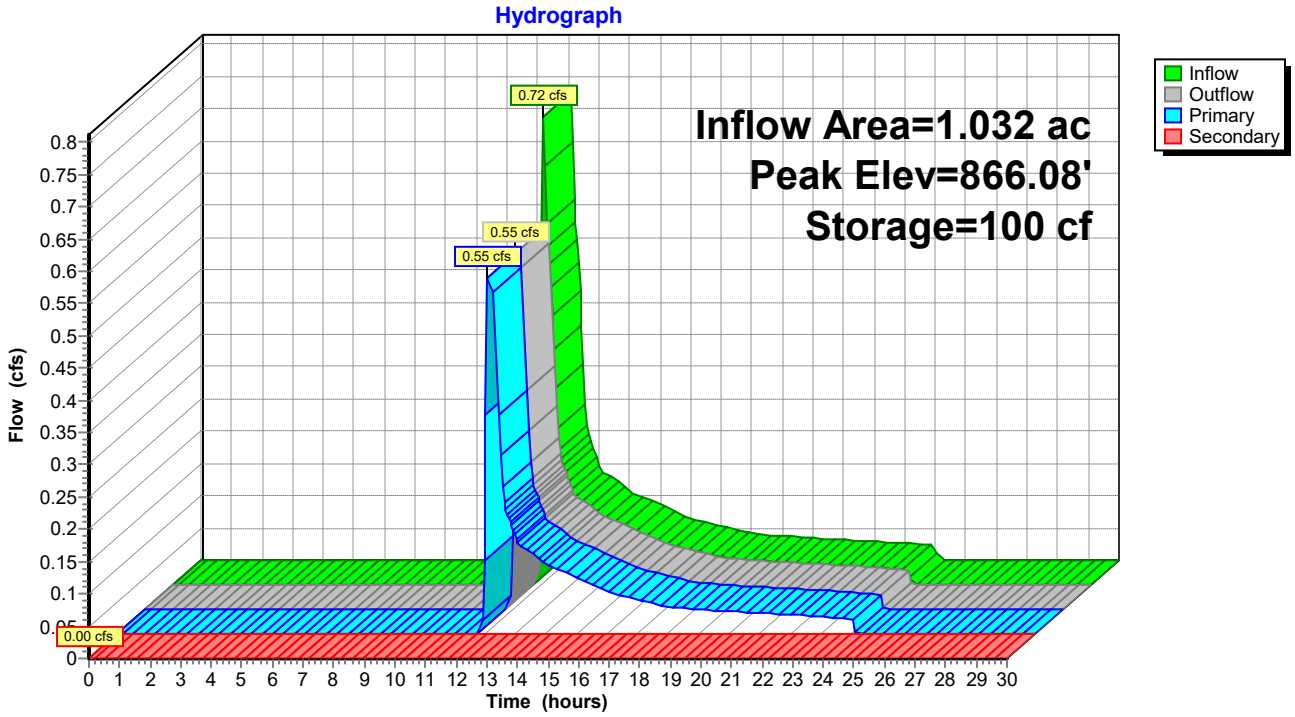
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
866.00	1,232	0	0
868.00	2,972	4,204	4,204

Device	Routing	Invert	Outlet Devices
#1	Secondary	867.00'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	864.50'	**6.0" Round Culvert** L= 26.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 864.50' / 864.00' S= 0.0192 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	864.50'	**Special & User-Defined** Head (feet) 0.00 1.00 2.00 4.00 6.00 Disch. (cfs) 0.000 0.550 0.550 0.550 0.550

Primary OutFlow Max=0.55 cfs @ 12.10 hrs HW=866.05' (Free Discharge)
↑**2=Culvert** (Passes 0.55 cfs of 0.85 cfs potential flow)
↑**3=Special & User-Defined** (Custom Controls 0.55 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=866.00' (Free Discharge)
↑**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond DB5: TO DP#2



Summary for Pond SB1: TO DB#11

Inflow Area = 11.353 ac, 1.93% Impervious, Inflow Depth = 0.70" for 100-Year event
Inflow = 3.34 cfs @ 12.55 hrs, Volume= 0.664 af
Outflow = 2.48 cfs @ 12.80 hrs, Volume= 0.648 af, Atten= 26%, Lag= 15.1 min
Primary = 2.48 cfs @ 12.80 hrs, Volume= 0.648 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 886.69' @ 12.80 hrs Surf.Area= 2,379 sf Storage= 2,891 cf

Plug-Flow detention time= 35.5 min calculated for 0.648 af (98% of inflow)
Center-of-Mass det. time= 23.8 min (974.2 - 950.5)

Volume	Invert	Avail.Storage	Storage Description
#1	885.00'	6,749 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

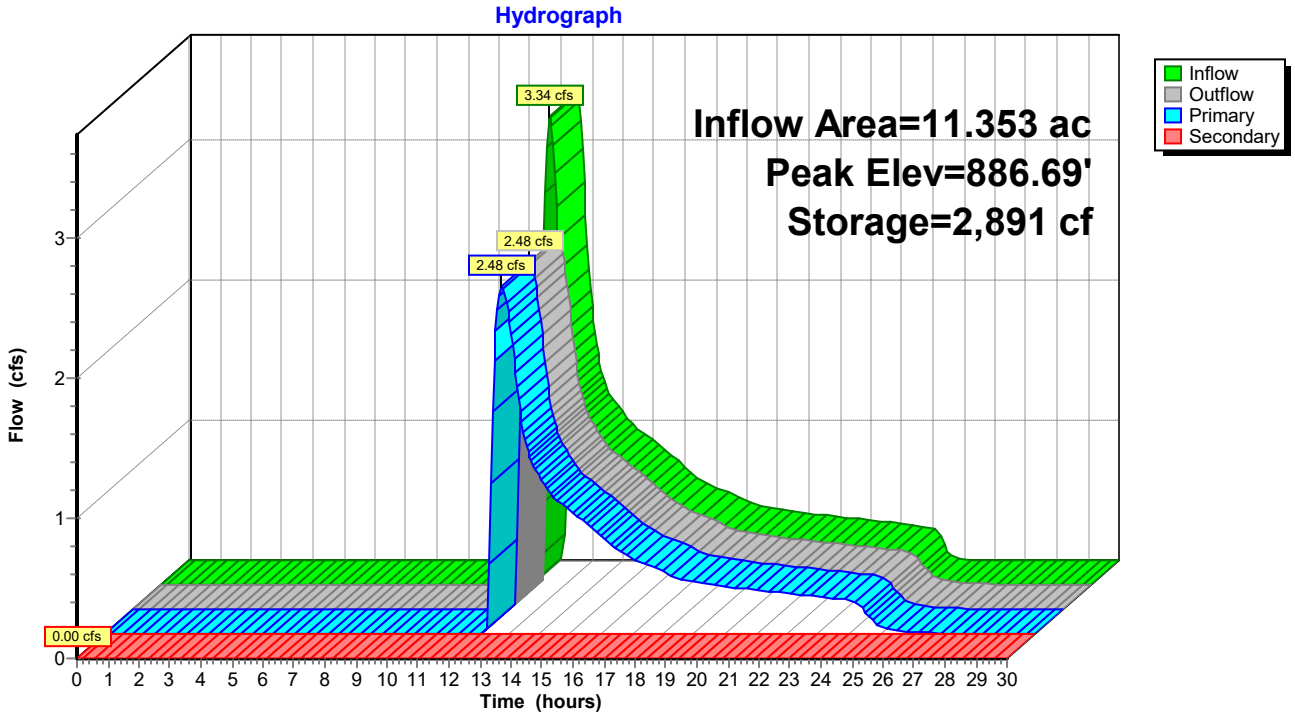
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
885.00	1,134	0	0
886.00	1,773	1,454	1,454
888.00	3,522	5,295	6,749

Device	Routing	Invert	Outlet Devices
#1	Primary	885.50'	**12.0" Round Culvert** L= 51.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 885.50' / 883.00' S= 0.0490 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	887.00'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=2.48 cfs @ 12.80 hrs HW=886.69' (Free Discharge)
1=Culvert (Inlet Controls 2.48 cfs @ 3.16 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=885.00' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond SB1: TO DB#11



Summary for Pond SB1-OLD: TO DP#2

[62] Hint: Exceeded Reach DMH-C OUTLET depth by 1.50' @ 24.75 hrs

Inflow Area = 2.265 ac, 25.48% Impervious, Inflow Depth = 2.32" for 100-Year event
Inflow = 4.49 cfs @ 12.07 hrs, Volume= 0.437 af
Outflow = 3.94 cfs @ 12.15 hrs, Volume= 0.335 af, Atten= 12%, Lag= 4.9 min
Primary = 3.94 cfs @ 12.15 hrs, Volume= 0.335 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 880.79' @ 12.15 hrs Surf.Area= 3,809 sf Storage= 5,510 cf

Plug-Flow detention time= 155.6 min calculated for 0.335 af (77% of inflow)
Center-of-Mass det. time= 65.5 min (882.3 - 816.8)

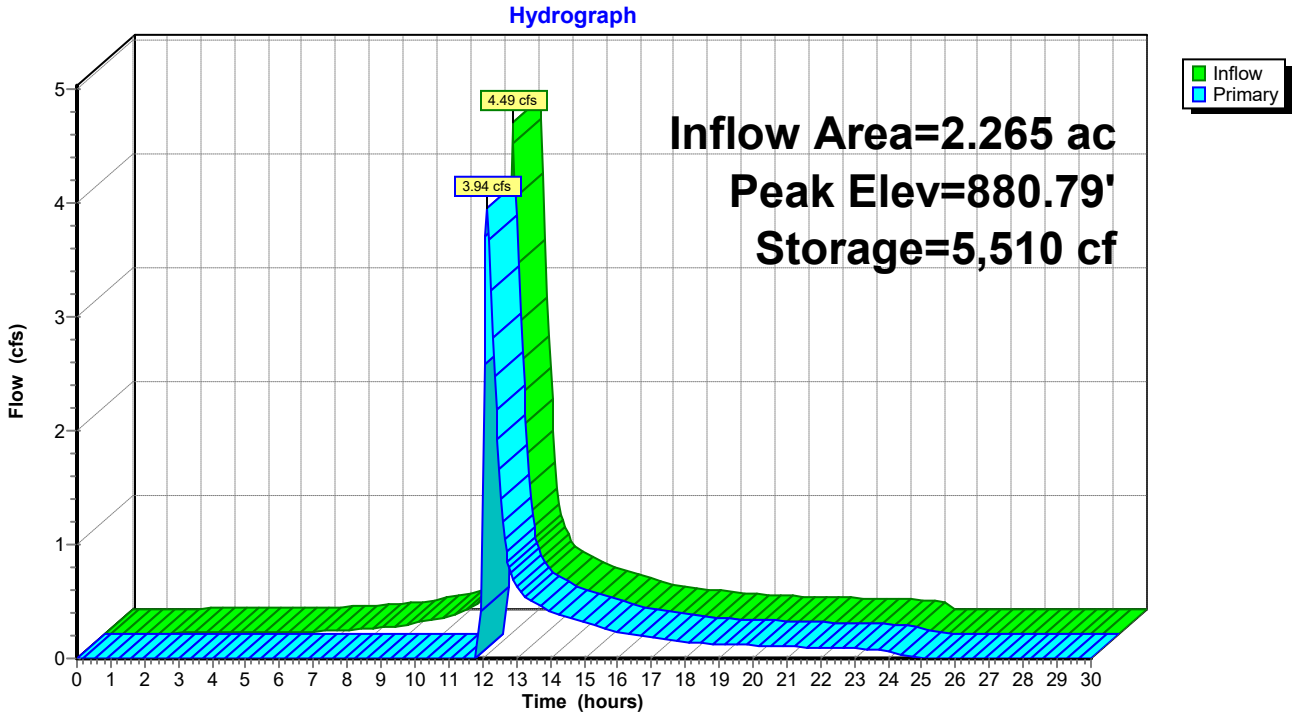
Volume	Invert	Avail.Storage	Storage Description
#1	879.00'	6,327 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
879.00	2,346	0	0
881.00	3,981	6,327	6,327

Device	Routing	Invert	Outlet Devices
#1	Primary	880.50'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=3.93 cfs @ 12.15 hrs HW=880.79' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 3.93 cfs @ 1.36 fps)

Pond SB1-OLD: TO DP#2



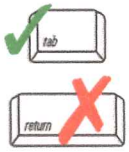
3.0
STORMWATER MANAGEMENT FORMS

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands Program

Checklist for Stormwater Report

A. Introduction

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



A Stormwater Report must be submitted with the Notice of Intent permit application to document compliance with the Stormwater Management Standards. The following checklist is NOT a substitute for the Stormwater Report (which should provide more substantive and detailed information) but is offered here as a tool to help the applicant organize their Stormwater Management documentation for their Report and for the reviewer to assess this information in a consistent format. As noted in the Checklist, the Stormwater Report must contain the engineering computations and supporting information set forth in Volume 3 of the Massachusetts Stormwater Handbook. The Stormwater Report must be prepared and certified by a Registered Professional Engineer (RPE) licensed in the Commonwealth.

The Stormwater Report must include:

- The Stormwater Checklist completed and stamped by a Registered Professional Engineer (see page 2) that certifies that the Stormwater Report contains all required submittals.[1] This Checklist is to be used as the cover for the completed Stormwater Report.
- Applicant/Project Name
- Project Address
- Name of Firm and Registered Professional Engineer that prepared the Report
- Long-Term Pollution Prevention Plan required by Standards 4-6
- Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan required by Standard 8[2]
- Operation and Maintenance Plan required by Standard 9

In addition to all plans and supporting information, the Stormwater Report must include a brief narrative describing stormwater management practices, including environmentally sensitive site design and LID techniques, along with a diagram depicting runoff through the proposed BMP treatment train. Plans are required to show existing and proposed conditions, identify all wetland resource areas, NRCS soil types, critical areas, Land Uses with Higher Potential Pollutant Loads (LUHPPL), and any areas on the site where infiltration rate is greater than 2.4 inches per hour. The Plans shall identify the drainage areas for both existing and proposed conditions at a scale that enables verification of supporting calculations.

As noted in the Checklist, the Stormwater Management Report shall document compliance with each of the Stormwater Management Standards as provided in the Massachusetts Stormwater Handbook. The soils evaluation and calculations shall be done using the methodologies set forth in Volume 3 of the Massachusetts Stormwater Handbook.

To ensure that the Stormwater Report is complete, applicants are required to fill in the Stormwater Report Checklist by checking the box to indicate that the specified information has been included in the Stormwater Report. If any of the information specified in the checklist has not been submitted, the applicant must provide an explanation. The completed Stormwater Report Checklist and Certification must be submitted with the Stormwater Report.

[1] The Stormwater Report may also include the Illicit Discharge Compliance Statement required by Standard 10. If not included in the Stormwater Report, the Illicit Discharge Compliance Statement must be submitted prior to the discharge of stormwater runoff to the post-construction best management practices.

[2] For some complex projects, it may not be possible to include the Construction Period Erosion and Sedimentation Control Plan in the Stormwater Report. In that event, the issuing authority has the discretion to issue an Order of Conditions that approves the project and includes a condition requiring the proponent to submit the Construction Period Erosion and Sedimentation Control Plan before commencing any land disturbance activity on the site.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands Program

Checklist for Stormwater Report

B. Stormwater Checklist and Certification

The following checklist is intended to serve as a guide for applicants as to the elements that ordinarily need to be addressed in a complete Stormwater Report. The checklist is also intended to provide conservation commissions and other reviewing authorities with a summary of the components necessary for a comprehensive Stormwater Report that addresses the ten Stormwater Standards.

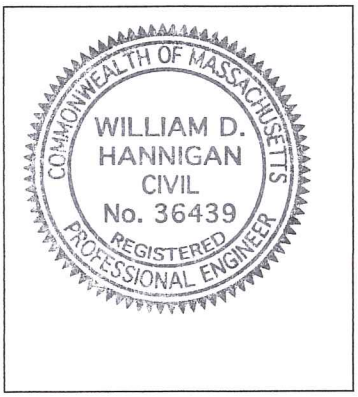
Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the item is not applicable (N.A.) and provide the reasons for that determination.

A complete checklist must include the Certification set forth below signed by the Registered Professional Engineer who prepared the Stormwater Report.

Registered Professional Engineer's Certification

I have reviewed the Stormwater Report, including the soil evaluation, computations, Long-term Pollution Prevention Plan, the Construction Period Erosion and Sedimentation Control Plan (if included), the Long-term Post-Construction Operation and Maintenance Plan, the Illicit Discharge Compliance Statement (if included) and the plans showing the stormwater management system, and have determined that they have been prepared in accordance with the requirements of the Stormwater Management Standards as further elaborated by the Massachusetts Stormwater Handbook. I have also determined that the information presented in the Stormwater Checklist is accurate and that the information presented in the Stormwater Report accurately reflects conditions at the site as of the date of this permit application.

Registered Professional Engineer Block and Signature



Signature and Date 11-9-18

Checklist

Project Type: Is the application for new development, redevelopment, or a mix of new and redevelopment?

☒ New development

☐ Redevelopment

☐ Mix of New Development and Redevelopment

Checklist for Stormwater Report

Checklist (continued)

LID Measures: Stormwater Standards require LID measures to be considered. Document what environmentally sensitive design and LID Techniques were considered during the planning and design of the project:

- ☒ No disturbance to any Wetland Resource Areas
- ☐ Site Design Practices (e.g. clustered development, reduced frontage setbacks)
- ☐ Reduced Impervious Area (Redevelopment Only)
- ☐ Minimizing disturbance to existing trees and shrubs
- ☐ LID Site Design Credit Requested:
  - ☐ Credit 1
  - ☐ Credit 2
  - ☐ Credit 3
- ☒ Use of "country drainage" versus curb and gutter conveyance and pipe
- ☐ Bioretention Cells (includes Rain Gardens)
- ☐ Constructed Stormwater Wetlands (includes Gravel Wetlands designs)
- ☐ Treebox Filter
- ☐ Water Quality Swale
- ☐ Grass Channel
- ☐ Green Roof
- ☐ Other (describe): Dry Detention Basin

Standard 1: No New Untreated Discharges

- ☒ No new untreated discharges
- ☒ Outlets have been designed so there is no erosion or scour to wetlands and waters of the Commonwealth
- ☒ Supporting calculations specified in Volume 3 of the Massachusetts Stormwater Handbook included.

Checklist for Stormwater Report

Checklist (continued)

Standard 2: Peak Rate Attenuation

☐ Standard 2 waiver requested because the project is located in land subject to coastal storm flowage and stormwater discharge is to a wetland subject to coastal flooding.

☒ Evaluation provided to determine whether off-site flooding increases during the 100-year 24-hour storm.

☒ Calculations provided to show that post-development peak discharge rates do not exceed pre-development rates for the 2-year and 10-year 24-hour storms. *With the exception of Design Point #14, with a de minimus increase of 0.01 c.f.s in the 2-year storm event. Reference is made to the provided Drainage Narrative for the review of the drainage area.* If evaluation shows that off-site flooding increases during the 100-year 24-hour storm, calculations are also provided to show that post-development peak discharge rates do no exceed pre-development rates for the 100-year 24-hour storm.

Standard 3: Recharge

☐ Soil Analysis provided.

☒ Required Recharge Volume calculation provided.

☐ Required Recharge volume reduced through use of the LID site Design Credits.

☒ Sizing the infiltration, BMPs is based on the following method: Check the method used.

☒ Static ☐ Simple Dynamic ☐ Dynamic Field[1]

☒ Runoff from all impervious areas at the site discharging to the infiltration BMP.

☐ Runoff from all impervious areas at the site is *not* discharging to the infiltration BMP and calculations are provided showing that the drainage area contributing runoff to the infiltration BMPs is sufficient to generate the required recharge volume.

☒ Recharge BMPs have been sized to infiltrate the Required Recharge Volume.

☐ Recharge BMPs have been sized to infiltrate the Required Recharge Volume *only* to the maximum extent practicable for the following reason:

- ☐ Site is comprised solely of C and D soils and/or bedrock at the land surface
- ☐ M.G.L. c. 21E sites pursuant to 310 CMR 40.0000
- ☐ Solid Waste Landfill pursuant to 310 CMR 19.000
- ☐ Project is otherwise subject to Stormwater Management Standards only to the maximum extent practicable.

☒ Calculations showing that the infiltration BMPs will drain in 72 hours are provided.

☐ Property includes a M.G.L. c. 21E site or a solid waste landfill and a mounding analysis is included.

[1] 80% TSS removal is required prior to discharge to infiltration BMP if Dynamic Field method is used.

Checklist for Stormwater Report

Checklist (continued)

Standard 3: Recharge (continued)

☐ The infiltration BMP is used to attenuate peak flows during storms greater than or equal to the 10-year 24-hour storm and separation to seasonal high groundwater is less than 4 feet and a mounding analysis is provided.

☐ Documentation is provided showing that infiltration BMPs do not adversely impact nearby wetland resource areas.

Standard 4: Water Quality

The Long-Term Pollution Prevention Plan typically includes the following:

- Good housekeeping practices;
- Provisions for storing materials and waste products inside or under cover;
- Vehicle washing controls;
- Requirements for routine inspections and maintenance of stormwater BMPs;
- Spill prevention and response plans;
- Provisions for maintenance of lawns, gardens, and other landscaped areas;
- Requirements for storage and use of fertilizers, herbicides, and pesticides;
- Pet waste management provisions;
- Provisions for operation and management of septic systems;
- Provisions for solid waste management;
- Snow disposal and plowing plans relative to Wetland Resource Areas;
- Winter Road Salt and/or Sand Use and Storage restrictions;
- Street sweeping schedules;
- Provisions for prevention of illicit discharges to the stormwater management system;
- Documentation that Stormwater BMPs are designed to provide for shutdown and containment in the event of a spill or discharges to or near critical areas or from LUHPPL;
- Training for staff or personnel involved with implementing Long-Term Pollution Prevention Plan;
- List of Emergency contacts for implementing Long-Term Pollution Prevention Plan.

☒ A Long-Term Pollution Prevention Plan is attached to Stormwater Report and is included as an attachment to the Wetlands Notice of Intent.

☐ Treatment BMPs subject to the 44% TSS removal pretreatment requirement and the one inch rule for calculating the water quality volume are included, and discharge:

- ☐ is within the Zone II or Interim Wellhead Protection Area
- ☐ is near or to other critical areas
- ☐ is within soils with a rapid infiltration rate (greater than 2.4 inches per hour)
- ☐ involves runoff from land uses with higher potential pollutant loads.

☐ The Required Water Quality Volume is reduced through use of the LID site Design Credits.

☐ Calculations documenting that the treatment train meets the 80% TSS removal requirement and, if applicable, the 44% TSS removal pretreatment requirement, are provided.

Checklist for Stormwater Report

Checklist (continued)

Standard 4: Water Quality (continued)

☒ The BMP is sized (and calculations provided) based on:

- ☒ The ½" or 1" Water Quality Volume or
- ☐ The equivalent flow rate associated with the Water Quality Volume and documentation is provided showing that the BMP treats the required water quality volume.

☐ The applicant proposes to use proprietary BMPs, and documentation supporting use of proprietary BMP and proposed TSS removal rate is provided. This documentation may be in the form of the propriety BMP checklist found in Volume 2, Chapter 4 of the Massachusetts Stormwater Handbook and submitting copies of the TARP Report, STEP Report, and/or other third party studies verifying performance of the proprietary BMPs.

☐ A TMDL exists that indicates a need to reduce pollutants other than TSS and documentation showing that the BMPs selected are consistent with the TMDL is provided.

Standard 5: Land Uses With Higher Potential Pollutant Loads (LUHPPLs) ***(Not Applicable)***

☐ The NPDES Multi-Sector General Permit covers the land use and the Stormwater Pollution Prevention Plan (SWPPP) has been included with the Stormwater Report.

☐ The NPDES Multi-Sector General Permit covers the land use and the SWPPP will be submitted ***prior to*** the discharge of stormwater to the post-construction stormwater BMPs.

☐ The NPDES Multi-Sector General Permit does ***not*** cover the land use.

☐ LUHPPLs are located at the site and industry specific source control and pollution prevention measures have been proposed to reduce or eliminate the exposure of LUHPPLs to rain, snow, snow melt and runoff, and been included in the long term Pollution Prevention Plan.

☐ All exposure has been eliminated.

☐ All exposure has ***not*** been eliminated and all BMPs selected are on MassDEP LUHPPL list.

☐ The LUHPPL has the potential to generate runoff with moderate to higher concentrations of oil and grease (e.g. all parking lots with >1000 vehicle trips per day) and the treatment train includes an oil grit separator, a filtering bioretention area, a sand filter or equivalent.

Standard 6: Critical Areas ***(Not Applicable)***

☐ The discharge is near or to a critical area and the treatment train includes only BMPs that MassDEP has approved for stormwater discharges to or near that particular class of critical area.

☐ Critical areas and BMPs are identified in the Stormwater Report.

Checklist for Stormwater Report

Checklist (continued)

Standard 7: Redevelopments and Other Projects Subject to the Standards only to the maximum extent practicable

☐ *Portions of the project are* subject to the Stormwater Management Standards only to the maximum Extent Practicable as a:

- ☐ Limited Project
- ☐ Small Residential Projects: 5-9 single family houses or 5-9 units in a multi-family development provided there is no discharge that may potentially affect a critical area.
- ☐ Small Residential Projects: 2-4 single family houses or 2-4 units in a multi-family development with a discharge to a critical area
- ☐ Marina and/or boatyard provided the hull painting, service and maintenance areas are protected from exposure to rain, snow, snow melt and runoff
- ☐ Bike Path and/or Foot Path
- ☐ Redevelopment Project
- ☐ Redevelopment portion of mix of new and redevelopment.

☐ Certain standards are not fully met (Standard No. 1, 8, 9, and 10 must always be fully met) and an explanation of why these standards are not met is contained in the Stormwater Report.

☐ The project involves redevelopment and a description of all measures that have been taken to improve existing conditions is provided in the Stormwater Report. The redevelopment checklist found in Volume 2 Chapter 3 of the Massachusetts Stormwater Handbook may be used to document that the proposed stormwater management system (a) complies with Standards 2, 3 and the pretreatment and structural BMP requirements of Standards 4-6 to the maximum extent practicable and (b) improves existing conditions.

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control

A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan must include the following information:

- Narrative;
- Construction Period Operation and Maintenance Plan;
- Names of Persons or Entity Responsible for Plan Compliance;
- Construction Period Pollution Prevention Measures;
- Erosion and Sedimentation Control Plan Drawings;
- Detail drawings and specifications for erosion control BMPs, including sizing calculations;
- Vegetation Planning;
- Site Development Plan;
- Construction Sequencing Plan;
- Sequencing of Erosion and Sedimentation Controls;
- Operation and Maintenance of Erosion and Sedimentation Controls;
- Inspection Schedule;
- Maintenance Schedule;
- Inspection and Maintenance Log Form.

☒ A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan containing the information set forth above has been included in the Stormwater Report.

Checklist (continued)

Checklist for Stormwater Report

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control (continued)

☐ The project is highly complex and information is included in the Stormwater Report that explains why it is not possible to submit the Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan with the application. A Construction Period Pollution Prevention and Erosion and Sedimentation Control has ***not*** been included in the Stormwater Report but will be submitted ***before*** land disturbance begins.

☐ The project is ***not*** covered by a NPDES Construction General Permit

☐ The project is covered by a NPDES Construction General Permit and a copy of the SWPPP is in the Stormwater Report.

☒ The project is covered by a NPDES Construction General Permit but no SWPPP been submitted. The SWPPP will be submitted BEFORE land disturbance begins.

Standard 9: Operation and Maintenance Plan

☒ The Post Construction Operation and Maintenance Plan is included in the Stormwater Report and includes the following information:

- ☒ Name of the stormwater management system owners;
- ☒ Party responsible for operation and maintenance;
- ☒ Schedule for implementation of routine and non-routine maintenance tasks;
- ☒ Plan showing the location of all stormwater BMPs maintenance access areas;
- ☐ Description and delineation of public safety features;
- ☐ Estimated operation and maintenance budget; and
- ☒ Operation and Maintenance Log Form.

☐ The responsible party is ***not*** the owner of the parcel where the BMP is located and the Stormwater Report includes the following submissions:

- ☐ A copy of the legal instrument (deed, homeowner's association, utility trust or other legal entity) that establishes the terms of and legal responsibility for the operation and maintenance of the project site stormwater BMPs;
- ☐ A plan and easement deed that allows site access for the legal entity to operate and maintain BMP functions.

Standard 10: Prohibition of Illicit Discharges

☐ The Long-Term Pollution Prevention Plan includes measures to prevent illicit discharges;

☐ An Illicit Discharge Compliance Statement is attached;

☒ NO Illicit Discharge Compliance Statement is attached but will be submitted ***prior to*** the discharge of any stormwater to post-construction BMPs.

Stormwater Compliance Documentation

Boutilier Road, Leicester, MA
September 10, 2018
Revised through November 9, 2018

Standard 1: No Untreated Discharges or Erosion to Wetlands

Minimal impervious areas are created by this development and are isolated to only the concrete inverter pads for the proposed interconnection equipment. Prior to discharge water will be discharged into a detention basin and slowly discharged to prevent erosion to the wetlands. The areas surrounding the solar panels, will be permanently stabilized with grass, eliminating sources of pollution requiring treatment.

Provided are the computations showing the calculations per the Connecticut DOT Drainage Manual, Section 11.13 that the proposed rip-rap aprons will provide adequate protection from scouring.

Equation-11.31
L=1.80(Q-5)/Sp^(1.5) + 10

Equation-11.33
W2=3Sp +0.7La

For 12-inch HDPE pipe (FE#1)

Qmax=0.46cfs Sp=12/12 → 1.00 ft
L=1.8(0.46-5)/(1.00^1.5) + 10 → -8.8 + 10 → 1.2 feet (MIN 10FT)
W2=3(1.0) +0.7(10) → 3 + 7 → 10 feet

Provide an apron 10-feet long with a terminus width of 10.0 feet wide.

For 12-Inch HDPE pipe (FE#2)

Qmax=1.99 cfs Sp=12/12 → 1.0 ft
L=1.8(1.99-5)/(1^1.5) + 10 → -5.4 + 10 → 4.6 feet (MIN 10FT)
W2=3(1.0) + 0.7(10) → 3.0 + 7 → 10 feet

Provide an apron 10.0 feet long with a terminus width of 10 feet wide.

For 12-Inch HDPE pipe (FE#4)

Qmax=2.61 cfs Sp=12/12 → 1.0 ft
L=1.8(2.61-5)/(1^1.5) + 10 → -4.3 + 10 → 5.7 feet (MIN 10FT)
W2=3(1.0) + 0.7(10) → 3.0 + 7 → 10 feet

Provide an apron 10.0 feet long with a terminus width of 10 feet wide.

For 12-Inch HDPE pipe (FE#5)

Qmax=2.48 cfs Sp=12/12 → 1.0 ft
L=1.8(2.48-5)/(1^1.5) + 10 → -4.5 + 10 → 5.5 feet (MIN 10FT)
W2=3(1.0) + 0.7(10) → 3.0 + 7 → 10 feet

Provide an apron 10.0 feet long with a terminus width of 10 feet wide.

Standard 2: Peak Rate Attenuation

As outlined in the Drainage Analysis and Report Narrative, mitigation of post development peak rates of runoff have been mitigated, for Design Point #2, #12, #13, #15, and #16, for all storm events while Design Point #14 experience increases in the peak rate of runoff. Design Point #14 experiences a net increase of 0.01 c.f.s. only in the 2-year storm event, thus the increase would be considered *de minimus*. Reference is made to the included narrative for further explanation. See the HydroCAD calculations for further information.

Standard 3: Stormwater Recharge

Impervious Area Proposed:

The soils within the development classified as HSG A:
Existing Impervious HSG A=0
Proposed Impervious HSG A=2,434 s.f.
Net New Impervious HSG A = +2,434 s.f

Required Recharge Volume:
Net Impervious HSG A = 2,434 s.f.
HSG A: 2,434 s.f. x (0.6 in/12) = 122 c.f.

Required Recharge Volume=***122 c.f.***

Total Required Recharge Volume for Project 122 c.f.

Storage Volume Provided:

Volume below lowest outlet within detention facility (*Recharge)*.
Settling Basin-1: 663 c.f. of storage volume provided.

Total Recharge Volume Provided = 663 c.f.
Compliance is provided.

Volume below lowest outlet within detention facility
(*Drawdown)*.
D-Basin #11: 26,525 c.f. of storage volume
D-Basin #12: 3,298 c.f. of storage volume
D-Basin #13: 1,207 c.f. of storage volume
D-Basin #14: 50 c.f. of storage volume (1-*Year Storm Event)*

Drawdown Time: (72 Hours Max.)
Time = Storage Volume / (K x Bottom Area)

Where K = Saturated Hydraulic Conductivity (inches/hour) (From table 2.3.3 1982 Rawls Rates – Mass Stormwater Handbook)

S-Basin #1: 663 c.f. of storage volume provided.
Time = 663 c.f. / [(2.41 in/hr x (1 ft/ 12 in) x 1,134 s.f.)] = **2.91 hrs**

D-Basin #11: 26,525 c.f. of storage volume provided.
Time = 26,525 c.f. / [(2.41 in/hr x (1 ft/ 12 in) x 13,097 s.f.) + (0.08 cf/s x 3600s/hr)] = **9.09 hrs**

D-Basin #12: 3,298 c.f. of storage volume provided.
Time = 3,298 c.f. / [(1.02 in/hr x (1 ft/ 12 in) x 3,625 s.f.) + (0.08 cf/s x 3600s/hr)] = **5.53 hrs**

D-Basin #13: 1,207 c.f. of storage volume provided.
Time = 1,207 / [(2.41 in/hr x (1 ft/ 12 in) x 1,954 s.f.)] = **3.07 hrs**

D-Basin #14: 50 c.f. of storage volume provided.
Time = 50 c.f. / [(1.02 in/hr x (1 ft/ 12 in) x 2080 s.f.) + (0.08 cf/s x 3600s/hr)] = **0.10 hrs**

Compliance is provided.

(Mounding Analysis is not required since infiltration is not used as a mechanism for peak rate mitigation.)

Recharge Provided:

Recharge Provided within Settling Basin#1

Volume below lowest outlet within detention facility (*Recharge).*
Settling Basin-1: 663 c.f. of storage volume provided.

Recharge Volume Required = 122 c.f.
Compliance is achieved

Standard 4: Water Quality

Water Quality Volume (WQV) = Water Quality Depth x Impervious Area

Water Quality Depth = ½ inch

WQV = [(0.5 inches) / 12 inches/foot]x(2,434 sf) =101 ***cf***

As the proposed solar panels are considered similar to roofs, they therefore produce little sediment runoff. Furthermore, the total new impervious surfaces created by the project are associated with the concrete pads that are used for the transformers. Because these pads are not associated with activities that typically generate sediment, for the purposes of this analysis they are also considered similar to roofs. Therefore, Water Quality Volume is not warranted under Stormwater Management Regulations.

Standard 5: Land Uses with Higher Potential Pollutant Loads

Not Applicable

Standard 6: Critical Areas

Not Applicable

Standard 7: Redevelopment

Not Applicable

Standard 8: Construction Period Controls

Proper erosion controls have been incorporated into the submitted plans and details to ensure compliance with the standard.

Standard 9: Operation and Maintenance Plan

Operation and Maintenance plans for the project have been incorporated into the submitted plans and details to ensure compliance with the standard.

Standard 10: Illicit Discharges to Drainage System

No Illicit discharges to the drainage system will occur as a result of this proposed project. A No Illicit discharge statement shall be provided prior to construction.

Summary for Pond SB1: TO DB#11

Inflow Area = 11.353 ac, 1.93% Impervious, Inflow Depth = 0.02" for Custom event
Inflow = 0.02 cfs @ 21.74 hrs, Volume= 0.015 af
Outflow = 0.00 cfs @ 25.02 hrs, Volume= 0.000 af, Atten= 98%, Lag= 196.7 min
Primary = 0.00 cfs @ 25.02 hrs, Volume= 0.000 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 885.51' @ 25.02 hrs Surf.Area= 1,461 sf Storage= 663 cf ← STORAGE / DRAWDOWN

Plug-Flow detention time= 665.0 min calculated for 0.000 af (1% of inflow)
Center-of-Mass det. time= 384.3 min (1,613.0 - 1,228.8)

Volume	Invert	Avail.Storage	Storage Description
#1	885.00'	6,749 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
885.00	1,134	0	0
886.00	1,773	1,454	1,454
888.00	3,522	5,295	6,749

Device	Routing	Invert	Outlet Devices
#1	Primary	885.50'	**12.0" Round Culvert** L= 51.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 885.50' / 883.00' S= 0.0490 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	887.00'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.00 cfs @ 25.02 hrs HW=885.51' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 0.00 cfs @ 0.29 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=885.00' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond DB11: TO WETLAND

[44] Hint: Outlet device #3 is below defined storage
[79] Warning: Submerged Pond SB1 Primary device # 1 OUTLET by 0.80'

Inflow Area = 17.764 ac, 1.27% Impervious, Inflow Depth > 0.47" for Custom event
Inflow = 2.03 cfs @ 12.77 hrs, Volume= 0.696 af
Outflow = 0.08 cfs @ 24.77 hrs, Volume= 0.117 af, Atten= 96%, Lag= 720.1 min
Primary = 0.08 cfs @ 24.77 hrs, Volume= 0.117 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 883.80' @ 24.77 hrs Surf.Area= 16,298 sf Storage= 26,525 cf ← DRAWDOWN VOLUME

Plug-Flow detention time= 513.6 min calculated for 0.117 af (17% of inflow)
Center-of-Mass det. time= 289.9 min (1,272.3 - 982.3)

Volume	Invert	Avail.Storage	Storage Description
#1	882.00'	67,293 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
882.00	13,097	0	0
884.00	16,644	29,741	29,741
886.00	20,908	37,552	67,293

Device	Routing	Invert	Outlet Devices
#1	Secondary	885.00'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	879.37'	**12.0" Round Culvert** L= 36.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 879.37' / 878.00' S= 0.0381 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	879.70'	**Special & User-Defined** Head (feet) 0.00 1.00 15.00 Disch. (cfs) 0.000 0.080 0.080
#4	Device 2	883.80'	**3.0" Vert. Orifice/Grate** C= 0.600
#5	Device 2	884.50'	**2.1' long Sharp-Crested Rectangular Weir X 3.00** 2 End Contraction(s) 0.5' Crest Height

Primary OutFlow Max=0.08 cfs @ 24.77 hrs HW=883.80' (Free Discharge)
↑—**2=Culvert** (Passes 0.08 cfs of 5.92 cfs potential flow)
↑—**3=Special & User-Defined** (Custom Controls 0.08 cfs)
—**4=Orifice/Grate** (Orifice Controls 0.00 cfs @ 0.23 fps)
—**5=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=882.00' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond DB12: TO DP12

[44] Hint: Outlet device #3 is below defined storage

Inflow Area = 7.158 ac, 0.00% Impervious, Inflow Depth = 0.26" for Custom event
Inflow = 0.58 cfs @ 12.46 hrs, Volume= 0.153 af
Outflow = 0.08 cfs @ 12.55 hrs, Volume= 0.117 af, Atten= 86%, Lag= 5.6 min
Primary = 0.08 cfs @ 12.55 hrs, Volume= 0.117 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 884.80' @ 22.24 hrs Surf.Area= 4,665 sf Storage= 3,298 cf ← DRAW DOWN VOLUME

Plug-Flow detention time= 385.8 min calculated for 0.116 af (76% of inflow)
Center-of-Mass det. time= 292.6 min (1,272.1 - 979.6)

Volume	Invert	Avail.Storage	Storage Description
#1	884.00'	17,157 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
884.00	3,625	0	0
886.00	6,239	9,864	9,864
887.00	8,347	7,293	17,157

Device	Routing	Invert	Outlet Devices
#1	Secondary	886.00'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	882.10'	**12.0" Round Culvert** L= 28.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 882.10' / 881.50' S= 0.0214 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	882.30'	**Special & User-Defined** Head (feet) 0.00 1.00 15.00 Disch. (cfs) 0.000 0.080 0.080
#4	Device 2	884.80'	**6.0" Vert. Orifice/Grate X 3.00** C= 0.600
#5	Device 2	885.75'	**2.1' long Sharp-Crested Rectangular Weir X 3.00** 2 End Contraction(s) 0.5' Crest Height

Primary OutFlow Max=0.08 cfs @ 12.55 hrs HW=884.14' (Free Discharge)
↑—**2=Culvert** (Passes 0.08 cfs of 3.71 cfs potential flow)
↑—**3=Special & User-Defined** (Custom Controls 0.08 cfs)
—**4=Orifice/Grate** (Controls 0.00 cfs)
—**5=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=884.00' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond DB13: TO DP#12

[62] Hint: Exceeded Reach DMH2 OUTLET depth by 0.50' @ 25.40 hrs

Inflow Area =	3.476 ac,	6.03% Impervious,	Inflow Depth =	0.10"	for Custom event
Inflow =	0.22 cfs @	12.22 hrs, Volume=	0.028 af		
Outflow =	0.00 cfs @	24.56 hrs, Volume=	0.000 af,	Atten= 100%,	Lag= 740.6 min
Primary =	0.00 cfs @	24.56 hrs, Volume=	0.000 af		
Secondary =	0.00 cfs @	0.00 hrs, Volume=	0.000 af		

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 892.50' @ 24.56 hrs Surf.Area= 2,842 sf Storage= 1,207 cf ⇦ DRAWDOWN

Plug-Flow detention time= 881.0 min calculated for 0.000 af (1% of inflow)
Center-of-Mass det. time= 651.7 min (1,597.6 - 945.9)

Volume	Invert	Avail.Storage	Storage Description
#1	892.00'	14,332 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
892.00	1,954	0	0
894.00	5,483	7,437	7,437
895.00	8,307	6,895	14,332

Device	Routing	Invert	Outlet Devices
#1	Secondary	894.00'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	890.00'	**12.0" Round Culvert** L= 38.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 890.00' / 888.00' S= 0.0526 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	893.50'	**2.6' long Sharp-Crested Rectangular Weir X 3.00** 2 End Contraction(s) 0.5' Crest Height
#4	Device 2	892.50'	**6.0" Vert. Orifice/Grate X 4.00** C= 0.600
#5	Device 2	893.00'	**3.0" Vert. Orifice/Grate X 3.00** C= 0.600

Primary OutFlow Max=0.00 cfs @ 24.56 hrs HW=892.50' (Free Discharge)
↑—**2=Culvert** (Passes 0.00 cfs of 4.23 cfs potential flow)
↑—**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
—**4=Orifice/Grate** (Orifice Controls 0.00 cfs @ 0.19 fps)
—**5=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=892.00' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond DB14: TO DP#14

[44] Hint: Outlet device #3 is below defined storage

Inflow Area = 1.193 ac, 0.00% Impervious, Inflow Depth = 0.09" for 1-Year event
Inflow = 0.02 cfs @ 12.49 hrs, Volume= 0.009 af
Outflow = 0.01 cfs @ 15.07 hrs, Volume= 0.009 af, Atten= 24%, Lag= 155.2 min
Primary = 0.01 cfs @ 15.07 hrs, Volume= 0.009 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 902.02' @ 15.07 hrs Surf.Area= 2,101 sf Storage= 50 cf ← DRAWDOWN

Plug-Flow detention time= 59.7 min calculated for 0.009 af (100% of inflow)
Center-of-Mass det. time= 59.6 min (1,074.4 - 1,014.8)

Volume	Invert	Avail.Storage	Storage Description
#1	902.00'	15,766 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
902.00	2,080	0	0
904.00	3,830	5,910	5,910
906.00	6,026	9,856	15,766

Device	Routing	Invert	Outlet Devices
#1	Secondary	905.00'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	900.30'	**4.0" Round Culvert** L= 50.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 900.30' / 898.00' S= 0.0460 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.09 sf
#3	Device 2	900.40'	**Special & User-Defined** Head (feet) 0.00 1.00 15.00 Disch. (cfs) 0.000 0.080 0.080

Primary OutFlow Max=0.08 cfs @ 15.07 hrs HW=902.02' (Free Discharge)
↑—**2=Culvert** (Passes 0.08 cfs of 0.41 cfs potential flow)
↑—**3=Special & User-Defined** (Custom Controls 0.08 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=902.00' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

3.1
OPERATION AND MAINTENANCE

STORMWATER OPERATION, MAINTENANCE AND POLLUTION PREVENTION PLAN

Solar Energy Field
Boutilier Road
Leicester, Massachusetts

RESPONSIBLE PARTY DURING CONSTRUCTION:

Pro-Tech Energy Solutions, LLC
Ken Lacourse
215 Executive Drive
Moorestown, New Jersey 08057
908-552-5690

RESPONSIBLE PARTY POST CONSTRUCTION:

ZPT Energy Solutions, LLC
Brendan Gove, Manager
309 East County Road
Rutland, Massachusetts 01562

BEST MANAGEMENT PRACTICES

To prevent the migration of soils, Best Management Practices (BMP's) shall be employed. During construction, hay bales and silt fence will be installed as shown on the plans and also at additional locations on an as needed basis to provide sufficient erosion controls on the site. These components shall be installed to catch and trap the migrating soil materials and pollutants.

All applicable BMP's listed below and in the Department of Environmental Protection's Stormwater Management Handbooks (Volume1: Overview of Massachusetts Stormwater Management Standards and Volume 2: Technical Guide for Compliance with Massachusetts Stormwater Management Standards) dated January 2008 (as amended), shall be incorporated in this project.

INSPECTION AND MAINTENANCE (DURING CONSTRUCTION)

1. At all times, hay bales, siltation fabric fencing and wooden stakes sufficient to construct sedimentation control barrier a minimum of 50 feet long will be stockpiled on the site in order to repair established barriers which may have been damaged or breached.

2. Necessary erosion controls shall be in place prior to any clearing or construction on the site. Construction sequence shall be phased in such a manner that the on-site detention basins are stabilized and functioning prior to the establishment of any new impervious areas on the site. The Contractor shall provide temporary stilling or settling basins as needed to catch and trap any migrating soil materials and pollutants from the construction areas.

3. An inspection of all erosion control and stormwater management systems shall be conducted at least once every fourteen (14) calendar days and following significant storm events. Where sites have been finally or temporarily stabilized, or runoff is unlikely due to winter conditions, such inspections shall be conducted at least once every month. (EPA SWPPP IS REQUIRED FOR THIS PROJECT)

   In case of any noted breach or failure, the General Contractor shall immediately make appropriate repairs to any erosion control system and notify the engineer of any problems involving storm water management systems.

   A significant storm event shall be defined as all or one of the following thresholds.

   a. Any storm in which rain is predicted to last for twelve consecutive hours or more.
   b. Any storm for which a flash flood watch or warning is issued.
   c. Any single storm predicted to have a cumulative rainfall of greater than one inch.
   d. Any storm not meeting the previous three thresholds but which would mark a third consecutive day of measurable rainfall.

4. If site inspections identify BMPs not operating effectively, maintenance must be performed as soon as possible and before the next storm event.

5. If BMPs need modification or additional BMPs need to be added, implementation must be completed before the next storm if practicable. If implementation before the next storm event is impracticable, the situation must be documented in the construction log and alternative BMPs must be implemented as soon as possible

6. The General Contractor shall also inspect the erosion control and stormwater management systems at times of significant increase in surface water runoff due to rapid thawing when the risk of failure of erosion control measures is significant.

7. In such instances as remedial action is necessary, the General Contractor shall repair any and all significant deficiencies in erosion control systems within two days.

8. The Department of Public Works and/or Conservation Commission shall be notified of any significant failure of storm water management systems and erosion and sediment control measures and shall be notified of any release of pollutants to a water body (stream, brook, pond, etc.).

9. The General Contractor shall remove the sediment from behind the fence of the sedimentation control barrier when the accumulated sediment has reached one-half of the original installed height of the barrier.

INSPECTION AND MAINTENANCE (POST-CONSTRUCTION)

It is the agreement of the responsible parties to finance, inspect, and perform (respectfully) the long-term maintenance of the erosion control devices and the stormwater management systems within the limits stated below.

1. A visual inspection of all erosion control and stormwater management systems shall be conducted by the above identified person(s) a minimum of once per month and after every major storm during the first six months of operation (a portion of that time must be in the growing season). Thorough investigations shall be conducted twice a year. Monthly maintenance requirements may be adjusted based upon the results obtained from the first year of operation.

2. **Maintenance Schedule**

Structure Type	Inspection	Maintenance	Task
Rip/Rap Aprons	Twice a Year	Every 10 Years	Remove Debris & Add Stone
Subdrains	Twice a Year	Every 4 Years	Replace Peastone
Detention Basins	Monthly (May-Oct)	Monthly (May-Oct)	Mow Grass Areas & Remove Debris Remove Sediment if present
Outfall Structures	Twice a Year	Every 10 Years	Remove Debris & Add Stone
Drainage Swale	Twice a Year	Monthly	Remove debris and vegetation. Mow Grass and replace stone as necessary

LONG TERM POLLUTION PREVENTION PLAN

1. Trash and other debris shall be removed from landscaped and planted areas periodically as needed. Full inspection of the site shall be made on a semi-annual basis to ensure clean and neat appearance to the site. This measure will help in the overall performance of the onsite systems.

2. Reseed any bare areas as soon as they occur. Erosion control measures shall be installed in these areas to prevent deposits of sediment from entering the drainage system

3. Grass shall be maintained at a minimum blade height of four to six inches and not allowed to exceed 18 inches in total height. Only 1/3 of the plant height shall be removed at a time.

SEEDING OPERATION AND MAINTENANCE

1. Grass shall be maintained at a minimum blade height of four to six inches and not allowed to exceed 18 inches in total height. Only 1/3 of the plant height shall be removed at a time.

2. No Herbicides or pesticides will be used on this project.

Inspection Log

Boutilier Road, Leicester, Massachusetts

DATE	ACTION	RESULT	PERFORMED BY

Maintenance Log

Boutilier Road, Leicester, Massachusetts

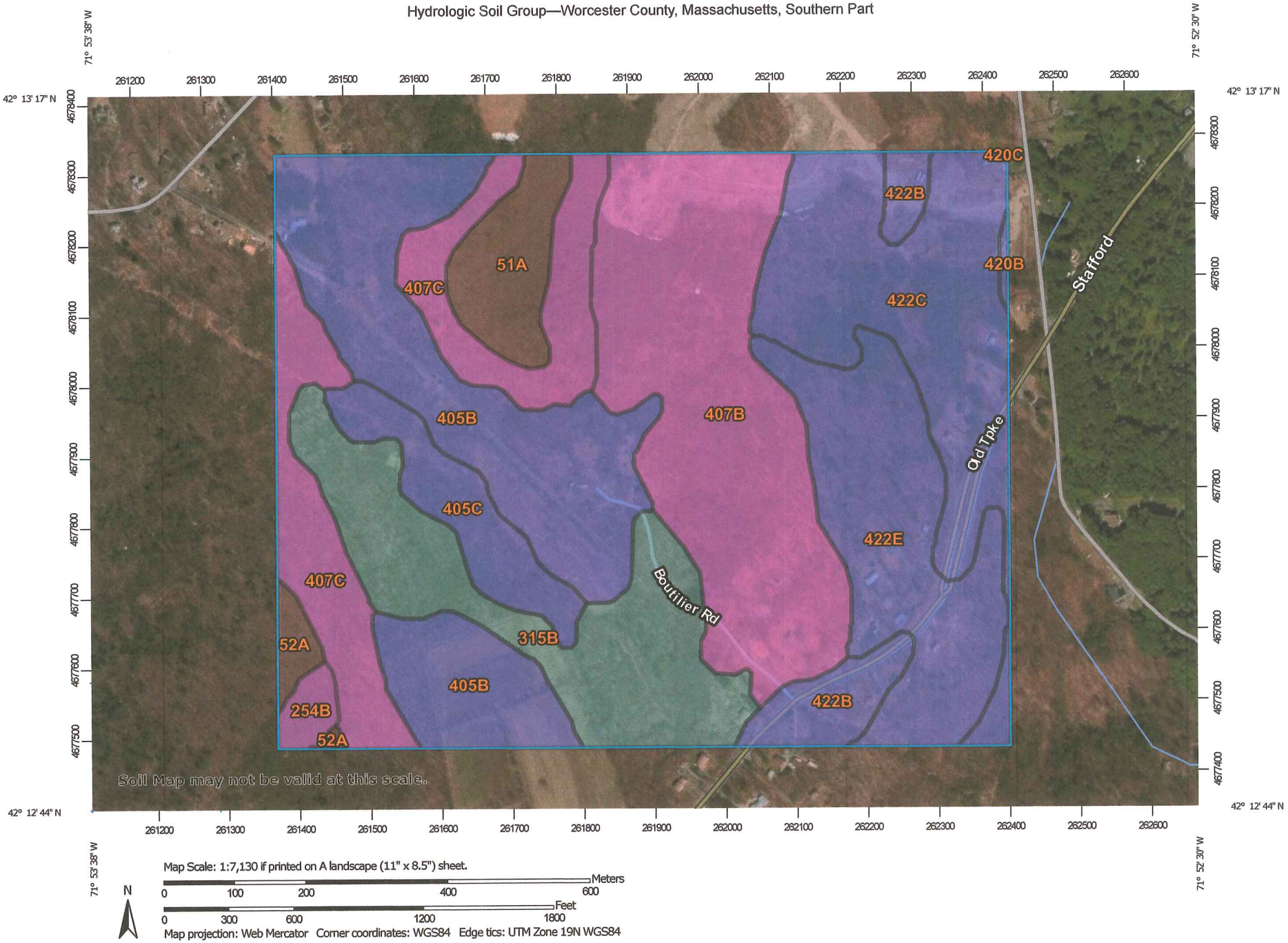
DATE	ACTION	PERFORMED BY

FIGURE 1
LOCUS MAP AND SOILS MAP

Boutilier Road, Leicester, Massachusetts

Printed from TOPO! ©1999 Wildflower Productions (www.topo.com)

Hydrologic Soil Group—Worcester County, Massachusetts, Southern Part



Map Scale: 1:7,130 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 100 200 400 600

Feet: 0 300 600 1200 1800

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:25,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Worcester County, Massachusetts, Southern Part
Survey Area Data: Version 10, Oct 6, 2017

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 8, 2011—Sep 28, 2014

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
51A	Swansea muck, 0 to 1 percent slopes	B/D	7.9	3.7%
52A	Freetown muck, 0 to 1 percent slopes	B/D	1.9	0.9%
254B	Merrimac fine sandy loam, 3 to 8 percent slopes	A	1.9	0.9%
315B	Scituate fine sandy loam, 3 to 8 percent slopes	C	25.6	11.9%
405B	Charlton fine sandy loam, 3 to 8 percent slopes	B	40.5	18.8%
405C	Charlton fine sandy loam, 8 to 15 percent slopes	B	8.8	4.1%
407B	Charlton fine sandy loam, 3 to 8 percent slopes, extremely stony	A	42.6	19.8%
407C	Charlton fine sandy loam, 8 to 15 percent slopes, extremely stony	A	23.5	10.9%
420B	Canton fine sandy loam, 3 to 8 percent slopes	B	0.3	0.2%
420C	Canton fine sandy loam, 8 to 15 percent slopes	B	0.0	0.0%
422B	Canton fine sandy loam, 0 to 8 percent slopes, extremely stony	B	6.8	3.2%
422C	Canton fine sandy loam, 8 to 15 percent slopes, extremely stony	B	30.4	14.1%
422E	Canton fine sandy loam, 15 to 35 percent slopes, extremely stony	B	25.1	11.7%
Totals for Area of Interest			**215.3**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

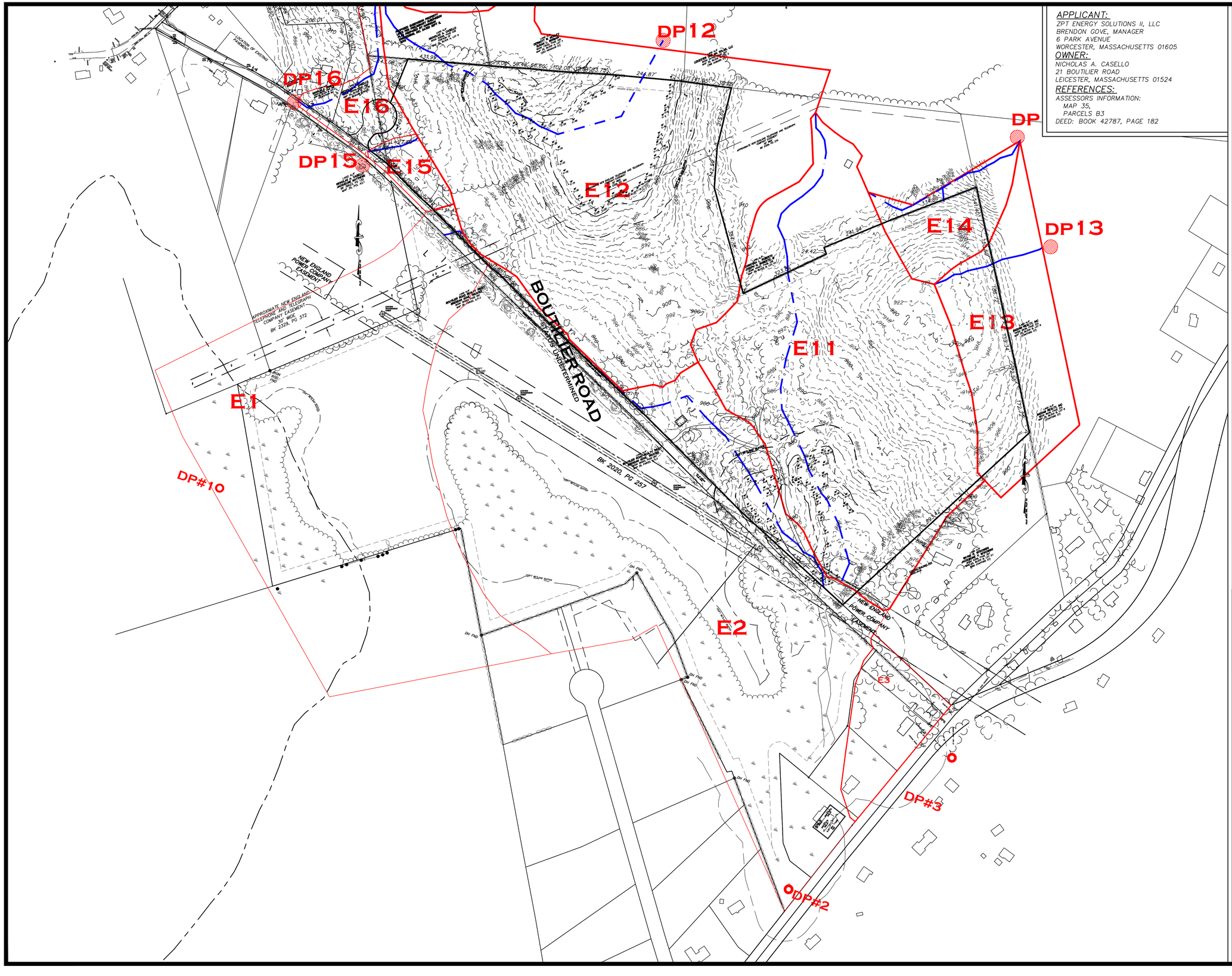
Aggregation Method: Dominant Condition

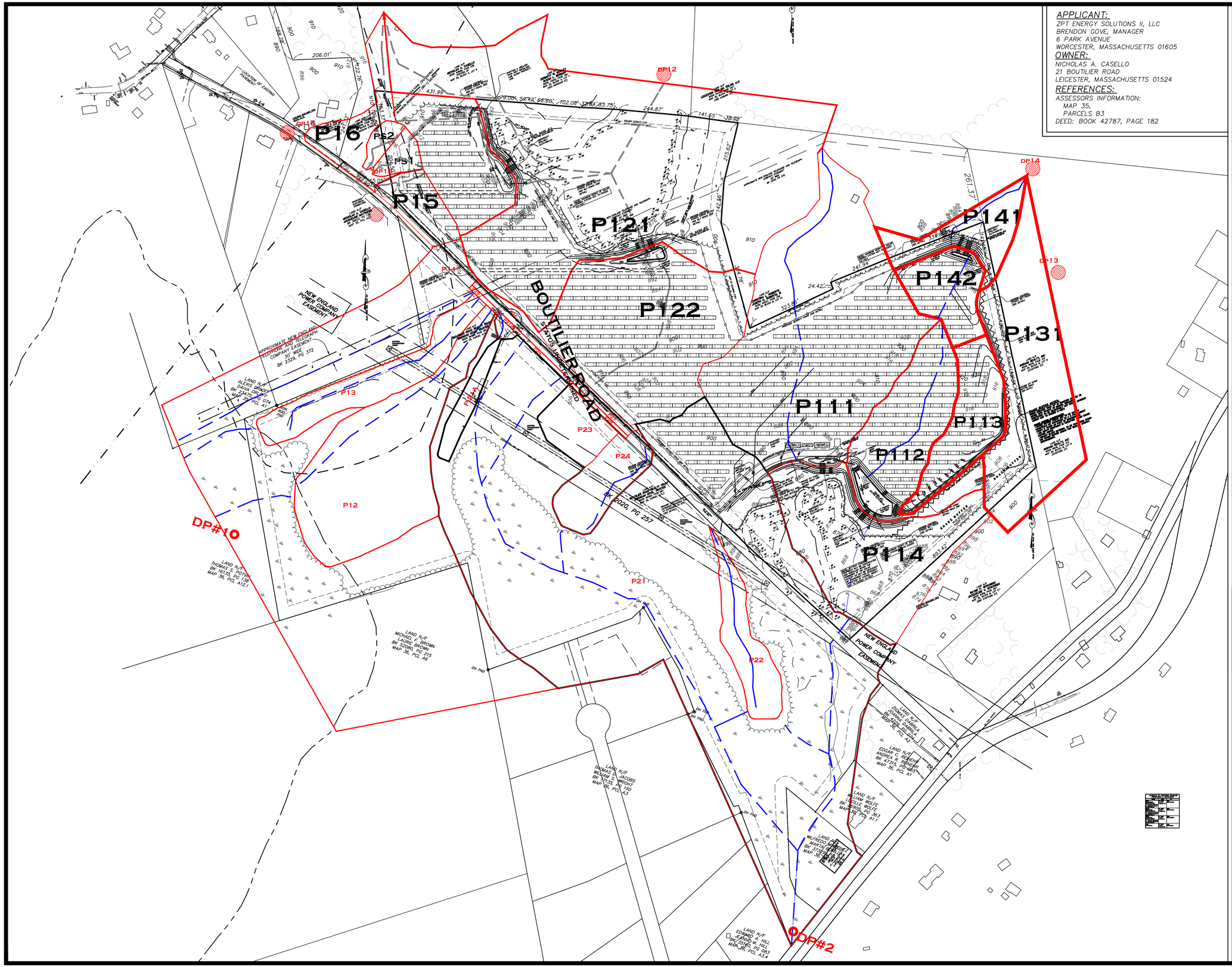
Component Percent Cutoff: None Specified

Tie-break Rule: Higher

FIGURE 2
PRE-DEVELOMPENT WATERSHED MAP

FIGURE 3
POST-DEVELOMPENT WATERSHED MAP


DP12
DP16
E16
DP15
E15
E12
DP
E14
DP13
E13
E11
E1
DP#10
BOUTILIER ROAD
STATUS UNDETERMINED
BK 2020, PG 257
NEW ENGLAND POWER EASEMENT
APPROXIMATE NEW ENGLAND TELEPHONE AND TELEGRAPH COMPANY EASEMENT 30' WIDE BK 2329, PG 372
NEW ENGLAND POWER COMPANY EASEMENT
E2
E3
DP#3
DP#2
LOCATION OF EXISTING TREELINE
206.01'
431.99'
24.87'
35.88'
24.42'
741.94'
323.52'
N/F
LOCATION OF WALL NO RECORDS FOUND
LOCATION OF WALL NO RECORDS FOUND
LOCATION OF WALL NO RECORDS FOUND


P16
PS2
PS1
P15
P121
P122
P141
P142
P131
P111
P113
P112
P114
P12
P13
P23
P24
P21
P22
DP#10
DP#2
DP12
DP14
DP13
DP15
DP16
DP11
BOUTILIER ROAD
PROPOSED 24' WIDE ACCESS
NEW ENGLAND POWER COMPANY EASEMENT
APPROXIMATE NEW ENGLAND TELEPHONE AND TELEGRAPH COMPANY EASEMENT 30' WIDE BK 2329, PG 372
BK 2020, PG 257
LOCATION OF EXISTING PAVEMENT
LAND N/F ALEXIS BROCK BK 2347, PG 74 MAP 35, PCL 47
LAND N/F THOMAS S. FRYER BK 1815, PG 158 MAP 36, PCL A121
LAND N/F MICHAEL J. BROWN LAURIE BROWN BK 2208, PG 815 MAP 36, PCL A6
LAND N/F THOMAS S. JACOBS MELANIE S. WRIGHT BK 1741, PG 150 MAP 36, PCL A3
LAND N/F EDWARD A. HILL EDWARD M. HILL BK 1591, PG 083 MAP 36, PCL A3.4
LAND N/F JOANN DABILA BK 1741, PG 42 MAP 36, PCL A2
LAND N/F EDGAR C. RENNER ANDREA R. RENNER BK 1741, PG 41 MAP 36, PCL A1
LAND N/F WILLIAM WOLFE LUCILLE WOLFE BK 1591, PG 363 MAP 36, PCL A11
LAND N/F WILFREDO MARTIN BK 3733, PG 183 MAP 36, PCL A3.2
LAND N/F
LAND N/F
LAND N/F